

Message

From: Bethany Davis [bethany@boydengrayassociates.com]
Sent: 7/11/2018 2:42:13 PM
To: Ford, Hayley [ford.hayley@epa.gov]
CC: Woodward, Cheryl [Woodward.Cheryl@epa.gov]
Subject: RE: Meeting with Administrator Scott Pruitt

Hayley,

I realize Domenic is at OIRA (and not the EPA). Sorry about the confusion.

Thank you,

Bethany Davis Horyn | Special Assistant
BOYDEN GRAY & ASSOCIATES
801 17th ST NW, Suite 350
Washington, DC 20006
Tel: 202-706-5491 | Fax: 202-955-0621

From: Bethany Davis
Sent: Friday, July 06, 2018 7:04 PM
To: Ford, Hayley <ford.hayley@epa.gov>
Cc: Woodward, Cheryl <Woodward.Cheryl@epa.gov>
Subject: Re: Meeting with Administrator Scott Pruitt

Hello Hayley,

The ambassador has met with them a few times now. He is happy to wait until Wheeler is available (even if that's late July/early August) and things settle down.

Separately, do you work with Domenic Mancini? We were wondering if he could meet on Tuesday at 3:00pm?

Thank you,
Bethany

On Jul 6, 2018, at 5:55 PM, Ford, Hayley <ford.hayley@epa.gov> wrote:

Hello Bethany,

Thank you for your message. Would Ambassador Gray be ok meeting with staff from our Office of Air & Radiation instead of Acting Administrator Wheeler? As you can imagine, his schedule is extremely chaotic next week with the transition. If so, then yes, we will have senior staff from OAR meeting with the Ambassador. Please let us know if that's ok and I'll forward to that office to handle.

Thank you and we appreciate your understanding.

Hayley Ford

Deputy White House Liaison and Personal Aide to the Administrator
Environmental Protection Agency
ford.hayley@epa.gov
Phone: 202-564-2022

Cell: **Ex. 6**

From: Bethany Davis [<mailto:bethany@boydengrayassociates.com>]
Sent: Friday, July 6, 2018 5:37 PM
To: Ford, Hayley <ford.hayley@epa.gov>
Cc: Woodward, Cheryl <Woodward.Cheryl@epa.gov>
Subject: Re: Meeting with Administrator Scott Pruitt

Hayley and Cheryl,

Can Andrew Wheeler meet on July 10 at 3:00pm with us? If not, could Dominic Mancini?

Thank you,
Bethany

On Jul 6, 2018, at 5:39 PM, Bethany Davis <bethany@boydengrayassociates.com> wrote:

Hayley and Cheryl,

I can imagine you are inundated with emails at this time.

Let me know when you get a chance if we still have a meeting on Tuesday at 3:00pm.
We have one person flying in/out same date to attend.

Thank you,

Bethany Davis Horyn | Special Assistant
BOYDEN GRAY & ASSOCIATES
801 17th ST NW, Suite 350
Washington, DC 20006
Tel: 202-706-5491 | Fax: 202-955-0621

From: Ford, Hayley [<mailto:ford.hayley@epa.gov>]
Sent: Monday, June 25, 2018 4:42 PM
To: Bethany Davis <bethany@boydengrayassociates.com>
Cc: Woodward, Cheryl <Woodward.Cheryl@epa.gov>
Subject: RE: Meeting with Administrator Scott Pruitt

Unfortunately he will now no longer be in the office on July 2.

Hayley Ford

Deputy White House Liaison and Personal Aide to the Administrator
Environmental Protection Agency

ford.hayley@epa.gov

Phone: 202-564-2022

Cell: **Ex. 6**

From: Bethany Davis [<mailto:bethany@boydengrayassociates.com>]
Sent: Monday, June 25, 2018 3:00 PM
To: Ford, Hayley <ford.hayley@epa.gov>
Cc: Woodward, Cheryl <Woodward.Cheryl@epa.gov>
Subject: RE: Meeting with Administrator Scott Pruitt

Hayley,

We changed his July 2 flight. Can we possibly switch it to July 2 at 3:15PM?

Thank you,

Bethany Davis Horyn | Special Assistant
BOYDEN GRAY & ASSOCIATES
801 17th ST NW, Suite 350
Washington, DC 20006
Tel: 202-706-5491 | Fax: 202-955-0621

From: Ford, Hayley [<mailto:ford.hayley@epa.gov>]
Sent: Monday, June 25, 2018 10:22 AM
To: Bethany Davis <bethany@boydengrayassociates.com>
Cc: Woodward, Cheryl <Woodward.Cheryl@epa.gov>
Subject: RE: Meeting with Administrator Scott Pruitt

Great – let's say July 10th at 3PM. I've copied Cheryl Woodward here who can send you arrival details. We look forward to seeing the Ambassador then!

Hayley Ford

Deputy White House Liaison and Personal Aide to the Administrator
Environmental Protection Agency
ford.hayley@epa.gov
Phone: 202-564-2022
Cell: Ex. 6

From: Bethany Davis [<mailto:bethany@boydengrayassociates.com>]
Sent: Saturday, June 23, 2018 4:11 PM
To: Ford, Hayley <ford.hayley@epa.gov>
Subject: Re: Meeting with Administrator Scott Pruitt

Hayley,

The 9th or the 10th at 3-5pm would work.

Thank you,

Bethany

From: Ford, Hayley <ford.hayley@epa.gov>
Sent: Friday, June 22, 2018 4:09:39 PM
To: Bethany Davis
Subject: RE: Meeting with Administrator Scott Pruitt

Unfortunately he likely won't be in the office on the 3rd. Would the week of July 9th work?

Hayley Ford

Deputy White House Liaison and Personal Aide to the Administrator
Environmental Protection Agency

ford.hayley@epa.gov

Phone: 202-564-2022

Cell: **Ex. 6**

From: Bethany Davis [<mailto:bethany@boydengrayassociates.com>]

Sent: Friday, June 22, 2018 10:25 AM

To: Ford, Hayley <ford.hayley@epa.gov>

Subject: RE: Meeting with Administrator Scott Pruitt

Hayley,

He is out of town on the 2nd but could do anytime on the 3rd.

Thank you,

Bethany Davis Horyn | Special Assistant

BOYDEN GRAY & ASSOCIATES

801 17th ST NW, Suite 350

Washington, DC 20006

Tel: 202-706-5491 | Fax: 202-955-0621

From: Ford, Hayley [<mailto:ford.hayley@epa.gov>]

Sent: Friday, June 22, 2018 10:22 AM

To: Bethany Davis <bethany@boydengrayassociates.com>

Subject: RE: Meeting with Administrator Scott Pruitt

Hi Bethany,

Thank you for being patient with us on this request. The Administrator will be on travel next week, but he could meet Monday, July 2nd. Would that work? Perhaps around 3:15PM?

Hayley Ford

Deputy White House Liaison and Personal Aide to the Administrator
Environmental Protection Agency

ford.hayley@epa.gov

Phone: 202-564-2022

Cell: **Ex. 6**

From: Bethany Davis [<mailto:bethany@boydengrayassociates.com>]

Sent: Friday, June 15, 2018 2:56 PM

To: Ford, Hayley <ford.hayley@epa.gov>

Subject: RE: Meeting with Administrator Scott Pruitt

Hayley,

The request form is attached.

Thank you,

Bethany Davis Horyn | Special Assistant
BOYDEN GRAY & ASSOCIATES
801 17th ST NW, Suite 350
Washington, DC 20006
Tel: 202-706-5491 | Fax: 202-955-0621

From: Ford, Hayley [<mailto:ford.hayley@epa.gov>]
Sent: Thursday, June 14, 2018 11:31 AM
To: Bethany Davis <bethany@boydengrayassociates.com>
Subject: RE: Meeting with Administrator Scott Pruitt

Hi Bethany,

Can you please complete the attached meeting request form with additional information? I'll then take a look at the calendar.

Thank you!

Hayley Ford

Deputy White House Liaison and Personal Aide to the Administrator
Environmental Protection Agency
ford.hayley@epa.gov
Phone: 202-564-2022
Cell: Ex. 6

From: Bethany Davis [<mailto:bethany@boydengrayassociates.com>]
Sent: Wednesday, June 13, 2018 4:24 PM
To: Ford, Hayley <ford.hayley@epa.gov>
Subject: Meeting with Administrator Scott Pruitt

Dear Hayley,

Is Administrator Pruitt available to meet with Ambassador C. Boyden Gray sometime this month?

Thank you,

Bethany Davis Horyn | Special Assistant
BOYDEN GRAY & ASSOCIATES
801 17th ST NW, Suite 350
Washington, DC 20006
Tel: 202-706-5491 | Fax: 202-955-0621



Meeting Request Form for Administrator Scott Pruitt

Today's Date: 6-15-2018

Meeting Date: by the end of June if possible

Meeting Time: TBD

Requested Location (if offsite, please list address, parking instructions, etc.): EPA

Requestor: C. Boyden Gray

Purpose of the Meeting: Discuss timeline for RVP relief

Background on the Meeting: Administrator Pruitt recently said he is "confident the statute provides for" RVP relief but cited uncertainty about the timeline and asked interested parties to "help us find an answer."

Role of the Administrator: EPA is responsible for administering the Clean Air Act, including section 211(h), under which EPA regulates RVP.

Attendees: C. Boyden Gray; Adam Gustafson

Point of Contact: Bethany Davis Horyn, 202-706-5491, Special Assistant to Ambassador C. Boyden Gray

Message

From: Bethany Davis [bethany@boydengrayassociates.com]
Sent: 10/10/2017 5:11:38 PM
To: Ford, Hayley [ford.hayley@epa.gov]
Subject: RE: Meeting with Administrator Pruitt

Hayley,

We are confirmed. Yes, she did.

Thank you,

Bethany Davis Horyn | Special Assistant
BOYDEN GRAY & ASSOCIATES
801 17th ST NW, Suite 350
Washington, DC 20006
Tel: 202-706-5491 | Fax: 202-955-0621

From: Ford, Hayley [mailto:ford.hayley@epa.gov]
Sent: Tuesday, October 10, 2017 12:16 PM
To: Bethany Davis <bethany@boydengrayassociates.com>
Subject: RE: Meeting with Administrator Pruitt

Hello Bethany,

Just wanted to confirm you were all set with details for tomorrow. Did Cheryl send those to you? She's out this week so wanted to double check. Thanks!

Hayley Ford

Deputy White House Liaison
Office of the Administrator
Environmental Protection Agency
Room: 3309C William Jefferson Clinton North
ford.hayley@epa.gov
Phone: 202-564-2022
Cell: Ex. 6

From: Ford, Hayley
Sent: Friday, September 29, 2017 4:41 PM
To: 'Bethany Davis' <bethany@boydengrayassociates.com>
Cc: Woodward, Cheryl <Woodward.Cheryl@epa.gov>
Subject: RE: Meeting with Administrator Pruitt

Perfect. Cheryl Woodward, copied here, will send you arrival details next week. I would plan to arrive around 3:15PM. We will already have Visitors badges made for you, so it shouldn't take too long.

Thank you!

Hayley Ford

Deputy White House Liaison
Office of the Administrator

Environmental Protection Agency
Room: 3309C William Jefferson Clinton North
ford.hayley@epa.gov
Phone: 202-564-2022
Cell: Ex. 6

From: Bethany Davis [<mailto:bethany@boydengrayassociates.com>]
Sent: Friday, September 29, 2017 4:38 PM
To: Ford, Hayley <ford.hayley@epa.gov>
Subject: RE: Meeting with Administrator Pruitt

Hayley,

Ambassador C. Boyden Gray, Founding Partner, Boyden Gray & Associates
Adam Gustafson, Partner, Boyden Gray & Associates
Andrew Varcoe, Partner, Boyden Gray & Associates

What time should they arrive for security and to what entrance?

Thank you,

Bethany Davis Horyn | Special Assistant
BOYDEN GRAY & ASSOCIATES
801 17th ST NW, Suite 350
Washington, DC 20006
Tel: 202-706-5491 | Fax: 202-955-0621

From: Ford, Hayley [<mailto:ford.hayley@epa.gov>]
Sent: Friday, September 29, 2017 4:18 PM
To: Bethany Davis <bethany@boydengrayassociates.com>
Subject: RE: Meeting with Administrator Pruitt

Let's plan for 3:30PM on Oct 11. Could you send along the names and titles of all those who will be attending? Thank you so much!

Hayley Ford
Deputy White House Liaison
Office of the Administrator
Environmental Protection Agency
Room: 3309C William Jefferson Clinton North
ford.hayley@epa.gov
Phone: 202-564-2022
Cell: Ex. 6

From: Bethany Davis [<mailto:bethany@boydengrayassociates.com>]
Sent: Friday, September 29, 2017 3:59 PM
To: Ford, Hayley <ford.hayley@epa.gov>
Subject: RE: Meeting with Administrator Pruitt

Hi Haley,

My apologies. Friday, Oct. 13 will not work, but Oct. 11 between 3 and 5pm does.

Otherwise, we can look at Oct. 17 & 18, but sooner would be preferable.

Thank you,

Bethany Davis Horyn | Special Assistant

BOYDEN GRAY & ASSOCIATES

801 17th ST NW, Suite 350

Washington, DC 20006

Tel: 202-706-5491 | Fax: 202-955-0621

From: Bethany Davis

Sent: Friday, September 29, 2017 2:28 PM

To: 'Ford, Hayley' <ford.hayley@epa.gov>

Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Dominguez.Alex@epa.gov; Adam Gustafson <gustafson@boydengrayassociates.com>

Subject: RE: Meeting with Administrator Pruitt

Hi Haley,

He is traveling and will not be back until the afternoon. Could we do between 3:00pm and 5:00pm? Alternatively, Friday, Oct. 13 is open except 12:45-2pm.

Thank you,

Bethany Davis Horyn | Special Assistant

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From: Ford, Hayley [<mailto:ford.hayley@epa.gov>]

Sent: Friday, September 29, 2017 2:25 PM

To: Bethany Davis <bethany@boydengrayassociates.com>

Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Dominguez.Alex@epa.gov; Adam Gustafson <gustafson@boydengrayassociates.com>

Subject: RE: Meeting with Administrator Pruitt

Hi Bethany,

Thank you for reaching out. I'd be happy to set this up, however, next week is tricky because the Administrator will be traveling most of the week. Could we set something up for Oct 11 instead? He could do 10, 10:30 or 2:45 that day.

Let me know if that works for you. Thank you!

Hayley Ford

Deputy White House Liaison

Office of the Administrator

Environmental Protection Agency

Room: 3309C William Jefferson Clinton North

ford.hayley@epa.gov

Phone: 202-564-2022

Cell: **Ex. 6**

From: Bethany Davis [mailto:bethany@boydengrayassociates.com]
Sent: Thursday, September 28, 2017 4:04 PM
To: Ford, Hayley <ford.hayley@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Dominguez, Alex@epa.gov; Adam Gustafson <gustafson@boydengrayassociates.com>
Subject: Meeting with Administrator Pruitt

Dear Haley,

I'm reaching out on behalf of Ambassador C. Boyden Gray to set up a meeting with Administrator Pruitt regarding the Midterm Evaluation.

We have lots of flexibility next week, including 2:30-4:30pm on Oct. 3, 4 or 5.

Thank you,

Bethany Davis Horyn | Special Assistant
BOYDEN GRAY & ASSOCIATES
801 17th ST NW, Suite 350
Washington, DC 20006
Tel: 202-706-5491 | Fax: 202-955-0621

Message

From: Bethany Davis [bethany@boydengrayassociates.com]
Sent: 9/28/2017 8:04:23 PM
To: Ford, Hayley [ford.hayley@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Dominguez.Alex@epa.gov; Adam Gustafson [gustafson@boydengrayassociates.com]
Subject: Meeting with Administrator Pruitt

Dear Haley,

I'm reaching out on behalf of Ambassador C. Boyden Gray to set up a meeting with Administrator Pruitt regarding the Midterm Evaluation.

We have lots of flexibility next week, including 2:30-4:30pm on Oct. 3, 4 or 5.

Thank you,

Bethany Davis Horyn | Special Assistant
BOYDEN GRAY & ASSOCIATES
801 17th ST NW, Suite 350
Washington, DC 20006
Tel: 202-706-5491 | Fax: 202-955-0621

Message

From: Ford, Hayley [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=4748A9029CF74453A20EE8AC9527830C-FORD, HAYLE]
Sent: 10/10/2017 4:15:47 PM
To: Bethany Davis [bethany@boydengrayassociates.com]
Subject: RE: Meeting with Administrator Pruitt

Hello Bethany,

Just wanted to confirm you were all set with details for tomorrow. Did Cheryl send those to you? She's out this week so wanted to double check. Thanks!

Hayley Ford

Deputy White House Liaison
Office of the Administrator
Environmental Protection Agency
Room: 3309C William Jefferson Clinton North
ford.hayley@epa.gov
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Cc: Woodward, Cheryl <Woodward.Cheryl@epa.gov>
Subject: RE: Meeting with Administrator Pruitt

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ford.hayley@epa.gov
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Sent: Friday, September 29, 2017 4:38 PM
To: Ford, Hayley <ford.hayley@epa.gov>
Subject: RE: Meeting with Administrator Pruitt

Hayley,

Ambassador C. Boyden Gray, Founding Partner, Boyden Gray & Associates
Adam Gustafson, Partner, Boyden Gray & Associates
Andrew Varcoe, Partner, Boyden Gray & Associates

What time should they arrive for security and to what entrance?

Thank you,

Bethany Davis Horyn | Special Assistant

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Sent: Friday, September 29, 2017 4:18 PM

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Subject: RE: Meeting with Administrator Pruitt

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Hayley Ford

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Cell: Ex. 6

From: Bethany Davis [<mailto:bethany@boydengrayassociates.com>]

Sent: Friday, September 29, 2017 3:59 PM

To: Ford, Hayley <ford.hayley@epa.gov>

Subject: RE: Meeting with Administrator Pruitt

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Thank you,

Bethany Davis Horyn | Special Assistant

BOYDEN GRAY & ASSOCIATES

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From: Bethany Davis

Sent: Friday, September 29, 2017 2:28 PM

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Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Dominguez.Alex@epa.gov; Adam Gustafson

<gustafson@boydengrayassociates.com>

Subject: RE: Meeting with Administrator Pruitt

Hi Haley,

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Alternatively, Friday, Oct. 13 is open except 12:45-2pm.

Thank you,

Bethany Davis Horyn | Special Assistant

BOYDEN GRAY & ASSOCIATES

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Sent: Friday, September 29, 2017 2:25 PM

To: Bethany Davis <bethany@boydengrayassociates.com>

Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Dominguez.Alex@epa.gov; Adam Gustafson

<gustafson@boydengrayassociates.com>

Subject: RE: Meeting with Administrator Pruitt

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Hayley Ford

Deputy White House Liaison

Office of the Administrator

Environmental Protection Agency

Room: 3309C William Jefferson Clinton North

ford.hayley@epa.gov

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Cell: Ex. 6

From: Bethany Davis [mailto:bethany@boydengrayassociates.com]

Sent: Thursday, September 28, 2017 4:04 PM

To: Ford, Hayley <ford.hayley@epa.gov>

Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Dominguez.Alex@epa.gov; Adam Gustafson

<gustafson@boydengrayassociates.com>

Subject: Meeting with Administrator Pruitt

Dear Haley,

I'm reaching out on behalf of Ambassador C. Boyden Gray to set up a meeting with Administrator Pruitt regarding the Midterm Evaluation.

We have lots of flexibility next week, including 2:30-4:30pm on Oct. 3, 4 or 5.

Thank you,

Bethany Davis Horyn | Special Assistant

BOYDEN GRAY & ASSOCIATES

801 17th ST NW, Suite 350

Washington, DC 20006

Tel: 202-706-5491 | Fax: 202-955-0621

Message

From: Andrew Varcoe [avarcoe@boydengrayassociates.com]
Sent: 5/19/2017 9:59:12 PM
To: Fotouhi, David [fotouhi.david@epa.gov]
Subject: good to meet you this morning

David,

Nice to meet you this morning, and thanks for the good overview of some key issues for the benefit of the ABA committee members. My colleague Adam Gustafson is a law school classmate of your counterpart Justin S., I understand. I expect we may have occasion to meet or talk before long. Regardless, have a great weekend!
Andy

Andrew R. Varcoe

Partner

Boyden Gray & Associates

801 17th Street NW, Suite 350

Washington, DC 20006

202.706.5488 (o), **Ex. 6** (m), 202.955.0621 (f)

avarcoe@boydengrayassociates.com

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 8/16/2018 4:24:02 PM
To: Hengst, Benjamin [Hengst.Benjamin@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Re: Meeting Request re RFC #17001
Attachments: Doc 27-2 Grundler Declaration re EPA Response to MSJ.pdf; UAI Comments on Increasing Consistency of Cost-Benefit Analysis through MOVES2014 ANPR.pdf

Dear Ben (cc: Mandy; Alex),

Thanks for your call the other day to discuss our request for a meeting about our Request for Correction concerning the MOVES2014 vehicular emissions model and the underlying EPA Act fuel effects study.

I am writing to renew our meeting request and to update you on two recent developments that highlight the urgency of a meeting and ultimately of a correction to MOVES2014.

First, EPA acknowledged the inadequacy of the model's emissions factors in its recent Triennial Report to Congress on Biofuels (at page 117), when it called for a new comprehensive emissions study of "the impacts of biofuels on the emissions from advanced light-duty vehicle technologies (Tier 3) similar in scope" to the EPA Act study, which was limited to Tier 2 vehicles. This study is needed to "improve understanding" because—according to EPA (at page xi)— "[o]nly limited data exist on the impacts of biofuels on the tailpipe and evaporative emissions of Tier 3 light-duty vehicles." A model based on outdated vehicles has no predictive value for the future.

Second, despite this recognition of the need for a new model, Chris Grundler filed the attached declaration this week indicating that EPA will perform the anti-backsliding study required by section 211(v) of the Clean Air Act using the outdated MOVES2014 model. Although the declaration acknowledges (at pages 14-15) that "we may need to develop a new modeling algorithm, or design and implement a new vehicle/engine emissions test program," it indicates that this new model will not be available until *after* the anti-backsliding study is completed and EPA is deciding between alternative mitigating regulations to promulgate. This puts the cart before the horse.

To avoid litigation risk, an accurate model is critically important for the diagnosis, not just the cure, as we explain in the attached comments filed Monday concerning EPA's Advanced Notice of Proposed Rulemaking on *Increasing Consistency and Transparency in Considering Costs and Benefits in the Rulemaking Process*.

EPA's May 21 letter indicates that the Agency will respond to our RFC by August 19, 2018. We respectfully request an opportunity to discuss EPA's forthcoming response with the responsible parties at their earliest availability.

Thank you.

Adam

From: Adam Gustafson <gustafson@boydengrayassociates.com>

Date: Monday, July 23, 2018 at 5:00 PM

To: "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>

Subject: Meeting Request re RFC #17001

Dear Ben,

I'm writing to request a meeting with OTAQ personnel concerning the Agency's forthcoming response to Request for Correction #17001 (attached), concerning the EPA's fuel effects study and the Agency's Motor Vehicle Emissions Simulator (MOVES2014).

I understand that OIRA is currently reviewing a draft response and that OIRA personnel would be willing to attend a meeting with EPA personnel. We would like to

- briefly outline the three erroneous features of the MOVES2014 model that we addressed in the RFC (tailpipe emissions factors, evaporative emissions factors, and default fuel parameters),
- explain the cause of those errors,
- describe our proposed solution, and
- answer any questions that OTAQ and OIRA personnel may have about our submission.

I would be happy to work with you to find a time that is agreeable to everyone. My phone number is

Ex. 6

Ex. 6

Thank you.

Adam

Adam R.F. Gustafson

Partner | **BOYDEN GRAY & ASSOCIATES**

801 17th Street NW, Suite 350

Washington, DC 20006

Cell: **Ex. 6**

Fax: 202-955-0621

gustafson@boydengrayassociates.com

Attachment 2

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

SIERRA CLUB

Case No. 1:17-cv-02174-APM

Plaintiff,

v.

ANDREW WHEELER, in his official
capacity as Acting Administrator, U.S.
Environmental Protection Agency,¹

Defendant.

Declaration of Christopher Grundler

I, Christopher Grundler, declare that the following statements are true and correct to the best of my knowledge and belief and that they are based on my personal knowledge, or on information contained in the records of the United States Environmental Protection Agency (EPA), or on information supplied to me by EPA employees.

A. General Background

1. I am the Director of the Office of Transportation and Air Quality (OTAQ), Office of Air and Radiation (OAR) at the EPA, a position I have held since 2012. Prior to my current position, I was the Deputy Director of OTAQ, a position I held since 1995.
2. OTAQ's mission is to protect human health and the environment by reducing air pollution and greenhouse gas emissions from mobile sources and the fuels that power them. OTAQ's programs address emissions from the range of mobile sources: cars and

¹ Andrew Wheeler has been substituted for Scott Pruitt under Fed. R. Civ. P. 25(d).

light trucks, large trucks and buses, farm and construction equipment, lawn and garden equipment, marine engines, aircraft, and locomotives.

3. OTAQ's primary activities include: (a) assessing mobile source-related air quality problems and developing sophisticated modeling tools to develop solutions, measure results, and support emission inventories; (b) establishing national standards to reduce emissions from on-road and nonroad mobile sources of pollution; (c) implementing national mobile source standards; (d) developing fuel efficiency programs and technologies to reduce the emission of greenhouse gases from the transportation sector; and (e) researching, evaluating, and developing advanced technologies for controlling emissions, as well as developing new strategies for improving fuel efficiency.

B. Background on Assessing Air Quality Impacts of Motor Vehicles and Engines and their Fuels

4. Motor vehicles and engines contribute to air pollution such as ozone, particulate matter, and hazardous air pollutants. Motor vehicles and engines emit compounds such as nitrogen oxides, volatile organic compounds, particulate matter, and air toxics. These emissions react in the atmosphere to form additional pollutants, such as ozone.
5. Thus, understanding the air quality impacts of motor vehicles and engines involves estimating their emissions and how those emissions behave in the atmosphere.
6. Estimating the emissions from motor vehicles and engines requires a model that accounts for many variables, such as engine type, its emissions controls and performance, and properties of the fuel it uses (for example, levels of ethanol, vapor pressure, and distillation properties). Estimating how those emissions behave in the atmosphere to produce air pollution requires air quality modeling that accounts for emissions from all sources, ambient concentrations of other pollutants, meteorology, chemistry, and so on.

7. EPA uses the MOtor Vehicle Emission Simulator (MOVES) to estimate emissions at a county level. The MOVES model is used to create emission factor tables, which, in turn, are used by the Sparse Matrix Operator Kernel Emissions (SMOKE) modeling system to generate air quality model-ready files for input into a photochemical air quality model called the Community Multiscale Air Quality (CMAQ) model.
8. EPA's experience in assessing air quality impacts of renewable fuels² indicates that the magnitude, timing, and location of emissions changes can have complex effects on the atmospheric concentrations of air pollutants, and that these concentrations can be spatially variable. Detailed emissions and air quality modeling are needed to address this complexity. Without adequate time to perform this quantitative modeling, summarized below, the scope of an air quality assessment (and, by extension, what conclusions can be drawn from it) would be significantly different.

C. Analysis and Steps for the Anti-backsliding Study

9. As described in more detail below, EPA's current plan to conduct the anti-backsliding study required by 42 U.S.C. § 7545(v)(1)(A) requires significant work to (i) estimate county-level emissions for a scenario with required renewable fuel volumes and a scenario without required renewable fuel volumes; (ii) model ambient concentrations for each of these scenarios; and (iii) assess and interpret the results of that modeling in a study. I estimate that the most expeditious schedule under the circumstances for completing the anti-backsliding study is approximately 14 months from the date of the

² See U.S. EPA, Renewable fuel standard program (RFS2) regulatory impact analysis (2010). <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1006DXP.txt>

Court's ruling on summary judgment. Paragraphs 12 to 21 describe this schedule.

Because this is the most expeditious schedule for the steps described below, any shorter schedule ordered by the court would require EPA to reevaluate plans for the study in order meet the Court's deadline. If the Court orders EPA to complete the study in less than 14 months, we would need to determine how to meet the deadline and reevaluate the steps described below, which could affect what we do at each step. For that reason, EPA intends to initiate the steps in the schedule below once the Court issues its order setting forth a deadline for the completion of the anti-backsliding study.

10. The schedule considers to the extent possible the resources (both of EPA staff and contractors) that can be devoted to completing the study, and assumes that the resources (both personnel and computing resources) are available as soon as necessary for this project.
11. Devoting additional EPA staff to the study would not shorten the schedule described below, because the work involved requires very specialized skills and this schedule already assumes full involvement by EPA's subject matter experts. Furthermore, because quality assurance is necessary at each step of the analysis and before subsequent steps can begin, almost all the steps must occur sequentially. The time allotted for quality assurance is a critical aspect of ensuring an expeditious schedule for completion of the study; if errors are found late in the process, previous steps will need to be re-done.

Step one: estimate county-level emissions (5 months)

12. To give some context of the emission information we use, EPA develops estimates of county-level emissions as a normal part of our rulemaking and National Emission Inventory development. We do this work frequently and we have optimized our process

to produce accurate results under tight time constraints. The schedule provided here is based on this experience.

13. The analysis and steps required to develop emissions estimates are largely sequential. As described below, developing model inputs and doing model runs are performed sequentially in order to include time for quality assurance of modeling results and possible corrections to inputs (which requires re-running a simulation before proceeding to the next step). The steps that could be performed concurrently, such as documentation and parallel processing, have already been accounted for in the schedule.
14. *Develop County-Specific Information (10 weeks):* To estimate county-level emissions, the EPA uses county-specific inputs. Those inputs come from detailed databases developed by EPA that contain information about the population of vehicles and equipment, and their activity, specific to each county. We group together counties with similar properties (such as fleet age distribution, inspection program, and fuel properties), and focus on a “representative county” in each group. We run the MOVES model on only the representative counties, which significantly reduces computation time. Two aspects of defining representative counties take significant amounts of time:
 - a. Because fuel properties are an important factor in determining county groups, profiling fuel properties for every county is the first step in identifying the representative counties. This effort includes the analysis and creation of overall market shares for different blends of gasoline and ethanol, and for different blends of petroleum diesel and biodiesel. These market shares then need to be allocated geographically and fuel profiles must be specified in great detail by parameters that may vary with time, location and biofuel content. And because EPA has to

compare emissions for scenarios with and without required renewable fuel volumes, it would need to profile fuel properties for both scenarios. This step is expected to take 6 weeks.

- b. Next, EPA has to create county databases and identify representative counties.

Many state and local agencies provide county-level MOVES inputs in the form of county databases. EPA screens all submitted data using several quality assurance (QA) scripts that analyze the individual tables in each county database and flag missing or unrealistic data values. EPA then reviews all potential errors, identifies errors that need to be addressed, and coordinates with the responsible state/local agency to clarify whether the data needs revision. After collecting all the county-specific model inputs and creating county databases, the representative counties are selected based on various factors. This step is expected to take 4 weeks.

15. *Generate MOVES Emission Factors for SMOKE for Both Scenarios (With and Without Required Renewable Fuel Volumes) (8 weeks).* EPA runs MOVES for each representative county using two different fuels -- January fuels and July fuels. The composition of, and emissions attributable to, fuel sold in the summer can be substantially different from fuel sold in the winter due to additional regulatory requirements intended to reduce ozone pollution in warmer months. In addition, EPA runs MOVES for each fuel for a range of temperatures spanned by the represented county group. Typically, tens of thousands of these runs are needed to produce a nationwide inventory of emissions for one calendar year. The MOVES runs result in four emission factor tables for each representative county and fuel month: rate per distance, rate per vehicle, rate per hour, and rate per profile. Each table provides estimates of emission rates from different vehicle processes

at different temperatures and speeds. These emissions factors allow EPA to fully account for emissions from all emission processes for all temperatures and speeds for vehicles in that county. After the initial MOVES runs for all representative counties are completed, a series of QA steps are taken to identify which runs failed and need to be re-run.

16. Having additional contractor support for the county-level emission estimates (step one) is not likely to shorten the time needed to complete the study because (a) the work performed by EPA staff cannot be easily transferred to contractors without devoting significant time to train them; (b) even when new contract staff are properly trained, because they are inexperienced, EPA staff would need to thoroughly review the contractors' work, which might take longer than doing the work in-house; and (c) we are not aware of additional contractors who already possess the specialized skills needed to perform the work.

Step two: model ambient concentrations (5 months)

17. Once EPA has emissions-factor data, it prepares that data for the air-quality models, a process that is expected to take 6 weeks:
 - a. First, EPA uses the SMOKE model to apply emission-factor data (generated from representative counties) to county-specific vehicle data, a method that produces vehicle emission rates for all counties. These calculations are done for every county, grid cell, and hour in the continental U.S. This step is expected to take 3 weeks.
 - b. EPA then examines the results from all counties to look for anomalies, an important step to assure that relevant data is not missing or incorrect and that errors in post-processing have not occurred. To do this, we prepare tables, graphs,

and maps that enable us to see if some results stand out as unusually large or small. If we find odd results, we investigate to determine the cause. If corrections are needed, MOVES runs and/or inventory processing may have to be repeated. This step is expected to take 2 weeks.

- c. EPA takes the county-specific vehicle emission rates and merges them with the inventories for the non-vehicle emission sources. This merging happens for every 12 km by 12 km grid cell and hour and there is a QA step to ensure that the merge is completed correctly. This step is expected to take 1 week.

18. *Model two scenarios (6 weeks).* EPA will utilize the CMAQ model to run the two emissions scenarios (with and without required renewable fuel volumes). CMAQ brings together three kinds of models: meteorological models to represent atmospheric and weather activities; emission models to represent man-made and naturally-occurring contributions to the atmosphere; and an air chemistry-transport model to predict the atmospheric fate of air pollutants under varying conditions. CMAQ will simulate the formation and fate of pollutants over the continental United States, using 12 km grid cells, for an entire year. Because of the complexity of these calculations, even assuming computing resources are available, each CMAQ run will take about 4 weeks. There can be some overlap so that once the first scenario is running, the second scenario can be run concurrently, so we expect this step to take 6 weeks.

19. *Process deliverables and check results (8 weeks).* The gridded hourly outputs of pollutant concentrations from each model run undergo extensive processing, including (1) extracting hourly grid-cell ozone, PM_{2.5}, and air toxic concentrations from model output files, (2) time-shifting model predictions from Greenwich Mean Time, which is

the native time zone used in air quality model runs, to local standard time, and (3) calculating appropriate pollutant concentrations (e.g., 8-hour ozone concentrations and 24-hour PM_{2.5} concentrations). Once appropriate modeled concentrations of pollutants are available, then we compare those outputs (e.g., create difference values for each grid cell) and translate the information into visuals such as maps and tables, which can take significant time. QA happens at multiple places: on the initial raw outputs from each run, and on the processed concentration outputs from each run, and finally on the air quality concentration differences. Once modeling outputs are reviewed for accuracy, we may need to revise the visuals, for instance, adjusting concentration ranges presented in air quality difference maps.

20. Modeling ambient concentrations (step two) is the part of the anti-backsliding study that benefits most from contractor help. In fact, we expect that this step will be done mostly by contractors with EPA direction and oversight. In addition, we note that the modeling and post-processing that is performed requires use of specialized computing power resources that are shared across EPA.

Step three: assess and interpret results (4 months)

21. Finally, EPA would need to draft the anti-backsliding study, meaning we would need to document analysis methodologies, present and describe the results, and develop conclusions. The draft report will then need to be internally reviewed, including through internal peer consultation. Once comments are considered and modifications to the draft report are complete, the report would need internal agency review and clearance at the management level. We expect these steps to take approximately 4 months.

D. Analysis and Steps for Action under Section 7545(v)(2)

22. What the anti-backsliding study concludes about adverse air quality impacts will have a profound impact on what mitigation measures EPA considers, the types and complexity of supporting analyses that must be conducted, and the length of time needed to complete the regulatory process.
23. For example, if adverse air quality impacts are found, and if there are fuel controls that might mitigate those impacts, a regulatory response can vary a great deal based on what kind of air-quality impacts we are dealing with. A regulatory strategy to reduce emissions of volatile organic compounds (such as reducing fuel volatility) may look very different from a strategy to reduce emissions of particulate matter and air toxics (such as controlling the aromatic content of gasoline). The regulatory strategies we consider will determine the complexity of feasibility, cost, lead time, emissions, and other analyses, and these in turn will determine the time needed for rulemaking.
24. As a result, it is not currently possible to specify the appropriate deadline for completing such a regulation.
25. We have, however, tried to forecast a timeline to take the action required by 42 U.S.C. § 7545(v)(2). Based on our best estimate at this time, it could take a total of 23 to 44 months for EPA to propose a rule to implement mitigation measures and 13 to 26 months to finalize the rule. Alternatively, if we determine that no mitigation measures are necessary, we estimate that it could take 3 months if the anti-backsliding study finds no adverse air-quality impacts, and anywhere from 23 to 44 months if the study finds some air quality impacts but EPA concludes that no measures are necessary. Below we describe the many variables that contribute to the uncertainties in our estimate. Our estimate assumes that where analyses can be conducted in parallel with one another, we

will do so. To illustrate which steps can be conducted in parallel and which are sequential, we attach Exhibit A, which shows the time it takes to complete different steps of a proposed rulemaking based on the top-end estimates for each step. We do not illustrate the steps in finalizing the rule because those steps do not overlap.

Estimated timeline for proposed rulemaking (23-44 months)

26. Generate potential control options for further analysis (2 months). The initial step for OTAQ would be to review the results of the anti-backsliding study and identify a list of potential fuel controls which exist that might be able to offset any adverse air quality impacts of renewable fuels, including an assessment of the magnitude of fuel control necessary to offset any negative emission impacts of renewable fuels. This could involve a literature review and potentially new analysis of data on the effects of fuels on vehicle emissions.
27. Assess technological feasibility of potential control options and screen them by their relative viability (2 months). Once we have identified one or more control options, we would assess the technological feasibility of refinery and/or other fuel market changes for the identified potential fuel control options. This could involve assessment of current industry configurations and processes, based on existing literature, consultation with industry experts, and compliance information collected by EPA. The time and resources necessary for this assessment will vary depending on what the potential control options are; if there is little available information or industry experience for an option, we would need to collect more information, meaning it will take longer to assess than an option for which there is extensive information and experience.

28. Conduct detailed analyses of identified fuel control options, including fuel production and distribution system costs and feasibility analyses (at least 5-8 months). EPA would need to conduct detailed analysis to confirm the viability of the control options and to identify the lead time necessary for industry to implement them. In addition, the time needed to conduct these analyses will depend on how many control options need to be assessed and compared. Analysis to support each control option under consideration could take 5 months, and analyzing more than one option could take longer. The major tasks in analyzing each option are:

- a. *Refinery modeling (at least 4 months)*. One important aspect of the detailed analysis is refinery modeling, which is used to assess the capital cost, operating cost, and lead time, as well as to develop the scenario-specific fuel supplies for every county as inputs to emissions analysis. Refinery models are very sophisticated cost optimization models which project the changes that refiners would make to comply with a specified fuel change. Because of their sophisticated nature, refinery models require at least 4 months to set up, run and interpret the results, regardless of whether they are run in-house or contracted out. If existing refinery models have not been configured to evaluate the potential fuel control options, then we would need to update them. New refinery modeling may well be required in order to determine how refineries will be able to comply with the new requirements, and that in turn drives questions about the costs of the regulation and its impacts on small businesses, which may drive further analysis or regulatory changes.

- b. *Assess distribution system impacts (if any) (0 -3 months in parallel with paragraph 28a).* The gasoline market has transformed itself in recent years such that the product which leaves the refinery and is shipped by pipeline is generally not finished gasoline. Rather, refiners largely manufacture “blendstock” which is then blended with ethanol and additives at a terminal before being distributed to retail stations. As a result, some fuel changes can affect the operation of refineries, pipeline and other fuel distribution companies, terminals which store the fuels downstream of the refinery, and even retail outlets and consumers. It is not possible to predict now whether an assessment of the cost and feasibility of distribution systems would be necessary, or whether its complexity would necessitate contractor assistance. But if an assessment is needed, we believe this step would take 1 to 3 months, and the work can be conducted in parallel with the other detailed analyses described in paragraph 28a.
- c. *Assess lead time/phase-in implementation feasibility of control options (1 - 4 months).* The costs and lead time associated with the control options depends upon the capital expenditures, time necessary to design and construct refinery modifications and, if necessary, to modify the downstream distribution and retail infrastructure. Because this assessment considers the results of the refinery modeling, these two tasks cannot be performed in parallel. The assessment would also entail gathering information from vendors, construction companies, pipelines, terminals, retailers, and other industry experts. The complexity of this assessment depends upon the nature of the fuel change required by the control

option and the associated actions that refineries and downstream parties would have to undertake in order to comply.

29. Assess emissions impacts of control options (6-24 months, conducted in parallel with paragraph 28c). The emissions impacts of control options would be estimated using the MOVES emissions model. This analysis differs from the one performed for the anti-backsliding study, because it will need to estimate different scenarios (e.g., different fuel properties) and different analysis years (e.g., one or more future years). Furthermore, even if the anti-backsliding study included a scenario that would be relevant for the regulatory analysis, it would have to be re-run to use the most up-to-date inputs and information related to MOVES, as detailed below.

- a. First, we would need to consider whether the model's underlying data and structure are adequate for estimating the impacts of a given control option. If so, the emissions impact analysis (including paragraph 29b) would take approximately 6 months. If key data gaps exist, we may need to develop a new modeling algorithm, or design and implement a new vehicle/engine emissions test program. Depending on their complexity, new test programs require at least 18 months to develop, contract out, implement, and analyze the results. Any subsequent changes to the structure of the model would require still more time for algorithm development, coding and testing. Thus, the emissions impact analysis could take 24 months or even longer.
- b. We would also need to assure that the standard model inputs are up to date. Periodic updates to MOVES incorporate the latest travel statistics and other data, but, depending on the focus of the proposed regulation and where MOVES is in

its development cycle, we may update specific inputs particularly relevant to the analysis.

30. Assess air quality impacts of control options (5-7 months). The process for assessing air quality impacts using SMOKE and CMAQ is described above. But the air quality analysis for rulemaking would differ from that for the study because the emissions estimates that are input to the air quality modeling will be different; as described in paragraph 29, there will be different scenarios and analysis years. The time needed to complete this analysis would depend on how many scenarios are being analyzed. A simple analysis with only one analysis year and two scenarios (a reference scenario and a control scenario) would take approximately 5 months. However, if there are multiple control options and/or multiple future years that are being analyzed, more CMAQ modeling runs, and more time, would be required. Furthermore, the length of time needed to post-process the modeling runs and generate summary deliverables such as maps, charts, etc. would depend on how many pollutants were being analyzed and also how many environmental impacts were relevant (e.g., visibility, nutrient deposition).

31. Assess human health, environmental, and other impacts of proposed rule (5 weeks).

Using the ambient air quality results of the CMAQ model (for each scenario) as an input, we would use the Environmental Benefits Mapping and Analysis Program – Community Edition (BenMAP-CE) to translate the modeled air concentration estimates into health effects incidence estimates and monetized benefits estimates. Further QA and post-processing of the BenMAP-CE output would be needed to generate an analysis of the primary suite of impacts as well as additional uncertainty, sensitivity, and supplemental analyses that reflect the current state of the science. BenMAP-CE processing time would

take approximately one week and QA/post-processing of BenMAP-CE output would take an additional two weeks. Documenting results and drafting supporting text would take approximately two weeks.

32. Conduct cost-benefit analysis (5 months, conducted partially in parallel with steps described in paragraphs 29 to 31). Cost-benefit analysis is required under E.O. 12866 for economically significant rulemakings and costs and benefits are key considerations for rulemakings pursuant to Title II of the Clean Air Act generally. The benefits generally come from the assessment of human health, environmental, and other impacts. The cost analysis requires the results of refinery modeling and distribution/retail system analysis and some can be done in parallel with the emissions analysis and air quality modeling described in paragraphs 29-31. Once the benefits and costs are available, the benefit-cost analysis itself will take a week.
33. Conduct economic-impact analysis (5 weeks, conducted partially in parallel with paragraphs 31 and 32). Economic-impact analysis assesses the effects of potential controls for key sectors and stakeholders and commonly includes assessment of employment impacts. For some sectors or stakeholders, qualitative assessment of impacts is sufficient and requires fewer resources. But for other sectors and depending on the magnitude of the effects, quantification of employment impacts may be necessary. Much of the model development, expected to take about a month, could overlap in time with the cost analysis; final calculations will take a week. Economic impact analyses of fuel changes also typically assess potential energy security and energy independence effects of the action. Quantification of energy security impacts of the various control options is

expected to take about a month, following the selection of control options and in parallel with other economic analyses.

34. Develop regulatory program design (2-6 months, in parallel with emissions impact analysis in paragraph 29). Once EPA settles on a control option, we would need to design a regulatory structure to implement that option, which would include both a compliance program and regulatory flexibilities. If the fuels regulation impacts refiners in similar ways as past rules, then this effort may be relatively straightforward – a 2-3 month process of determining how to best fold the new provisions in to the existing fuel regulations. However, if the new control imposes novel requirements on refineries, or if it involves regulations for downstream fuel distributors, then it will require a much more extensive regulatory development process. This process could involve consultation with external stakeholders and other EPA components (such as the Office of Air Quality Planning and Standards and the Office of Enforcement and Compliance Assurance).
35. Regulatory Flexibility Act analysis and review panel (8-10 months, largely in parallel with steps described in paragraphs 28-29 and 34). Under the Regulatory Flexibility Act, EPA would need to determine whether the proposed rule would have a significant impact on a substantial number of small entities, such as small businesses. Our Initial Regulatory Flexibility Analysis needs to include a description and estimate of the number of small entities to which the rule would apply and an analysis of the rule's potential impact on them. This is informed by the cost and feasibility analyses described above as well as additional unique analysis using information developed by the Small Business Administration, employment information, and other cost analyses. Depending on the results of the Initial Regulatory Flexibility Analysis, EPA may need to convene a Small

Business Advocacy Review Panel to consider regulatory options and flexibilities to help mitigate potential adverse effects on small businesses. This statutorily-prescribed process involves the Small Business Administration, the Office of Management and Budget (OMB), and representatives from the industry sectors that would potentially be affected by the rule, and includes convening of a federal panel and outreach meetings with small entity representatives, and ultimately a final report that summarizes the panel's recommendations. The time needed for this process depends on whether a panel must be convened and, if so, the complexity of the issues involved (all unknown at this time).

36. Other Executive Orders, including Paperwork Reduction Act (2 months; some partially in parallel with other steps, including paragraphs 31-33). There are a number of analyses and processes required to comply with the Paperwork Reduction Act and multiple Executive Orders, such as those related to energy supply, distribution or use (E.O. 13211); environmental justice (E.O. 12898); protection of children from environmental health risks (E.O. 13045); and consultation and coordination with tribal governments (E.O. 13175). The Paperwork Reduction Act requires EPA to identify the information collection requirements and estimate their burden, and submit an Information Collection Request to OMB for public comment and ultimately OMB approval.

37. Development, review, and signature of *Federal Register* proposed rule package (7-10 months, partially in parallel with other steps, including paragraphs 30-33, 36). Developing a proposed rule for the Federal Register involves preparing a notice that explains and supports the proposed regulatory action, including background information; the options and alternatives considered; and the legal, policy and technical bases for the action. There is also a regulatory impact analysis and other technical support documents

that explain the various technical analyses supporting the proposed action. Although the process of drafting the notice can be concurrent with some of the steps described above, significant portions of the notice cannot be drafted until EPA's senior management offers initial direction to the technical, policy, and legal staff and then makes policy decisions based on the analyses and options they present. Once the proposal package is drafted, staff and management in offices across the agency, including the Assistant Administrator of the Office of Air and Radiation and the Associate Administrator of the Office of Policy, will review the draft and provide comments, which must be addressed before the draft is sent for review and signature by the Administrator. Before the Administrator's signature, a standard part of the rulemaking process involves interagency review through OMB, which takes up to 90 days.

Final rule development (13-26 months)

38. Public comment period and hearing (75 days from proposal signature). After the proposal is signed, it needs to be published in the Federal Register. The time it takes for publication depends on the length of the proposal, its complexity, and factors within the Office of Federal Register. EPA is required to take public comment and provide an opportunity for a public hearing. There must be sufficient advance notice of the hearing in the Federal Register, and the record for the proposed action must be open for public comment for at least 30 days after the (last) public hearing. We assume that it takes the Office of Federal Register 30 days to publish the proposal, and that the proposal would provide 15 days' notice for a public hearing. That is, a hearing would be held 15 days after publication. If we close the comment period 30 days after the hearing, the public would have a total of 45 days from the date of publication to comment, and the total time

from signature of the proposal to the close of the comment period is 75 days. But for significant, complicated rules, stakeholders usually ask for a total of at least 60 (as opposed to 45) days to comment, meaning the total time from signature of the proposal to the close of public comment is at least 90 days.

39. Consider public comments (3 months). Once the comment period is closed, EPA must review the comments received and evaluate whether those comments warrant further analyses or affect the technical analysis or the policy decisions. While some comments can be reviewed during the comment period, most commenters make their submissions in the final few days of the comment period. As a result, review of the public comments received on the proposed action largely occurs after the close of the comment period. The length of time needed to consider public comments depends on the number and complexity of comments. (This step is separate from actually responding to comments in light of the Agency's ultimate decision, which takes place later in the process and is described in paragraph 41.)

40. Update or redo analyses based on public comments, additional or more recent information, etc. (up to 10 months). If EPA receives or becomes aware of new data to inform the technical analyses conducted for the proposal, or if EPA decides to consider alternative control options that were not previously analyzed, additional work would be needed. Conducting new emissions analysis and air quality modeling could take eight or more months, depending on the complexity of the changes that are needed and whether new refinery modeling is needed to provide inputs. Although some analyses could be conducted in parallel with the emissions and air quality modeling, other analyses, such as

the assessment of human health and environmental impacts, use results from the air quality modeling as inputs.

41. Development, review, and signature of *Federal Register* package (7-10 months). Once the updated analysis is complete, EPA will again need to identify issues that require decisions from senior management, identify options for addressing those issues, prepare written briefing materials outlining the issues and options, and brief senior management. EPA will also need to develop final rulemaking materials including a notice of final rulemaking, final regulatory text, and technical support documents detailing the policy analysis underlying the final rulemaking. In addition to these materials, the EPA will need to prepare a response-to-comment document detailing the EPA's response to all significant comments received on the notice of proposed rulemaking, including responses to various policy, legal, and technical issues raised in the comments. EPA anticipates that any rulemaking which significantly impacts refineries or the broader transportation fuels market will attract intense interest from stakeholders and close scrutiny of EPA's analyses. Even if EPA ultimately does not conclude it is necessary to redo analyses in response to comments, it will still have to invest substantial time in considering the merits of highly technical comments and then responding in writing to each of them. EPA will also need to develop a revised regulatory impact analysis evaluating the policy being finalized. Once the notice of final rulemaking and associated support documents are drafted, staff experts and management in offices across the agency, including the Assistant Administrator of the Office of Air and Radiation and the Associate Administrator of the Office of Policy, will review the draft and provide comments, which must be addressed before the draft is sent for review and signature by the Administrator.

The process of briefings, drafting, and internal review is expected to take at least 7 months after analyses are complete. Finally, before the Administrator signs the final rule, a standard part of the executive branch's rulemaking process involves interagency review through OMB, which takes up to 90 days.

Section 7545(v)(2)(B) determination

42. The length of time needed for a determination that mitigation measures are not necessary will largely depend on the results of the anti-backsliding study and the complexity of issues surrounding any adverse air quality impacts it identifies. If the anti-backsliding study identified no adverse air quality impact at all, then relatively little additional analysis may be necessary, and EPA would need about 3 months to draft a notice explaining its determination. However, if there is some adverse impact on air quality, and if that impact could be mitigated through fuel controls, EPA could potentially need to undertake the entire range of analyses described in paragraphs 26 to 33 to assess whether mitigation measures are necessary, as well as additional time for drafting and internal review of its determination. Indeed, depending on the results of the anti-backsliding study, one of the purposes of the analyses described in paragraphs 26-33 may be to determine whether mitigation measures are necessary, and EPA may undertake those analyses without knowing whether the outcome will be a notice of proposed rulemaking or a determination that such rulemaking is unnecessary. Again, without the anti-backsliding study's results, we do not know precisely how long these analyses would take. Our best estimate for completing a determination based on these analyses is 23 to 44 months.

E. Conclusion


43. Considering the extensive emissions and air quality modeling involved in the anti-backsliding study, EPA believes that 14 months from the date of the Court's ruling on summary judgment is the most expeditious deadline EPA can meet to complete the steps described in paragraphs 14-21.

44. Because the results of the anti-backsliding study are critical to EPA's decisions about how to proceed under 42 U.S.C. § 7545(v)(2) with respect to mitigation measures, it is not currently possible to specify the appropriate schedule to take that action. Based on our best estimate at this time, it could take a total of 23 to 44 months for EPA to propose a rule to implement mitigation measures and 13 to 26 months to finalize a rule.

Alternatively, if we determine that no mitigation measures are necessary, we estimate that it could take anywhere from 3 months to 44 months, depending on the existence and degree of adverse air quality impacts, and the analyses needed to assess whether mitigation measures are necessary.

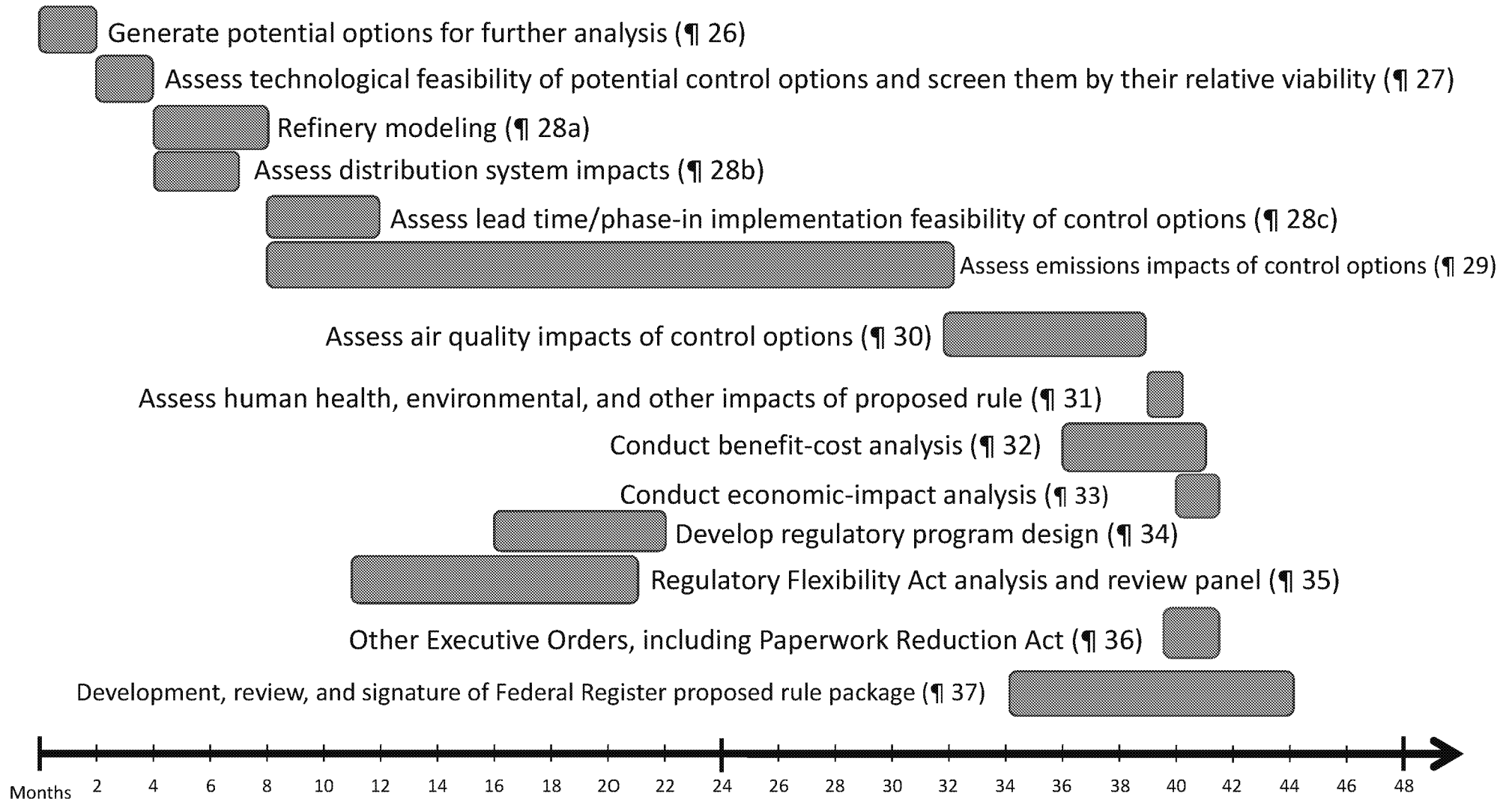
I declare under penalty of perjury that to the best of my knowledge and belief the foregoing is correct.

Executed this 10th day of August, 2018.



Christopher Grundler, Director
Office of Transportation and Air Quality
Office of Air and Radiation
United States Environmental Protection Agency

Exhibit A: Proposed Rulemaking Timeline



Comments of
Urban Air Initiative

on

Increasing Consistency and Transparency
in Considering Costs and Benefits in the Rulemaking Process

Docket ID No. EPA-HQ-OAR-2018-0107

83 Fed. Reg. 27,524 (June 13, 2018)

(Advanced Notice of Proposed Rulemaking)

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INTRODUCTION

Urban Air Initiative (UAI) agrees with EPA's goal of increasing consistency and transparency in accounting for the costs and benefits of its regulatory activities.¹ UAI further agrees with EPA that to be truly consistent and transparent, as well as useful, assessments of costs and benefits must be informed by accurate, impartial scientific models. As EPA has stated in its Advanced Notice of Proposed Rulemaking: "Any assessment of costs and benefits is limited by the state of the scientific and economic modeling."² Skewed or otherwise inaccurate assessments of costs and benefits do not inform the public of the true pros and cons of regulation and do not serve the goal of enhancing agency decisionmaking. Indeed, as explained below, such assessments can hamper States' flexibility in complying with environmental protection requirements and can thereby undermine the functioning of cooperative federalism protections that lie at the heart of some of our basic federal environmental statutes. To improve the accuracy of its cost-benefit assessments, EPA should take steps to better ensure that scientific models used to assess costs and benefits are based on robust and accurate science.

For example, EPA currently uses a methodologically flawed motor vehicle emissions model to inform its cost-benefit analyses. The problems with this fundamentally inaccurate model are detailed in the Request for Correction submitted to the prior Administration by the States of Kansas and Nebraska, the Energy Future Coalition, and the Urban Air Initiative in January 2017.³ As the Request for Correction explains, EPA's 2014 Motor Vehicle Emissions Simulator (MOVES2014) model (and EPA's materially identical MOVES2014a model) inaccurately predicts that adding ethanol to gasoline – a common

¹ UAI is a social welfare organization dedicated to educating the public about health threats posed by current formulations of gasoline, and to taking positive steps to reduce such threats by encouraging improvements in the formulations of such fuels.

² 83 Fed. Reg. at 27526. See *Mississippi v. EPA*, 744 F.3d 1334, 1352 (D.C. Cir. 2013) (per curiam) (citing "the inviolable law of data analysis, 'garbage in; garbage out,'" and noting that risk and exposure assessments were "only as reputable as the inputs upon which they rely to produce their predictions").

³ See State of Kansas et al., Request for Correction re EPA/V2/E-89 Fuel Effects Study and Motor Vehicle Emissions Simulator Model (MOVES2014), RFC 17001 (Jan. 19, 2017), available at https://www.epa.gov/sites/production/files/2017-02/documents/epact_-_fuel_effects_study_rfc_17001.pdf (hereinafter RFC).

fuel-blending practice – increases motor vehicle emissions of air pollutants.⁴ The MOVES model, developed by EPA’s Office of Transportation and Air Quality (OTAQ), estimates emissions for mobile sources at the national, county, and project level for criteria pollutants, greenhouse gases, and air toxics. The Clean Air Act requires EPA to update its mobile source emissions models regularly.⁵ As further explained in the Request for Correction, the MOVES2014 model’s error stems from its reliance on faulty fuel effects studies.

As detailed below, the MOVES2014 model is highly influential at both the federal and the state levels. For example, MOVES2014’s estimates of the emissions effects of various fuel parameters dictate the policies States can adopt to implement National Ambient Air Quality Standards (NAAQS), the highway projects that States can undertake, and the emissions inventories that EPA uses to inform its policymaking. In addition, EPA has said that it will use the MOVES2014 model to estimate and (if deemed necessary on the basis of that model) to mitigate the environmental effects of the Renewable Fuel Standard. And EPA uses MOVES2014 (or has used its predecessors) to conduct the cost-benefit analyses that justify other major rules, including the Corporate Average Fuel Economy (CAFE) and greenhouse gas (GHG) emissions standards, the Tier 3 Motor Vehicle Emissions Rule, and the 2010 Renewable Fuel Standard Rule. All such regulatory endeavors will be defective unless EPA updates its models’ erroneous emissions effects for ethanol. Although ethanol reduces a host of toxic air pollutants, EPA’s model erroneously projects that increasing ethanol content increases emissions of these pollutants.

EPA should correct the flawed MOVES2014 model and should implement requirements to ensure that future cost-benefit assessments are based on robust scientific evidence.

⁴ In December 2015, EPA replaced MOVES2014 with MOVES2014a, which is EPA’s latest vehicular emissions model. The discrete changes that EPA made in MOVES2014a do not fix the errors and problems described in the Request for Correction. All references herein to MOVES2014 are equally applicable to, and are intended to encompass, MOVES2014a (except where the context indicates otherwise).

⁵ 42 U.S.C. § 7430.

I. THE MOVES2014 MODEL UNDERMINES THE ACCURACY AND EFFECTIVENESS OF NUMEROUS ENVIRONMENTAL ASSESSMENTS AND POLICIES.

A. MOVES2014 is fundamentally flawed and thus cannot be relied on for agency cost-benefit analyses.

MOVES2014 is so badly flawed that it cannot be relied on for EPA cost-benefit analyses, as the Request for Correction further explains, for several reasons that UAI summarizes here.

Most fundamentally, MOVES2014's tailpipe emissions factors are based on a flawed study (the "EPAct study") that was intended to satisfy the requirements of the 2005 Energy Policy Act, but which failed to do so.⁶

Under EPA's Information Quality Guidelines, the EPAct study and MOVES2014 model are subject to the highest information quality standards, because the States are required to use the MOVES2014 in developing State Implementation Plans for air quality standards.⁷ For such "influential" information with "a clear and substantial impact on important public policies," EPA is required to use the best available science and data collection methods and to conform to the highest standards of objectivity, utility and integrity.⁸

The EPAct study, however, fails these standards. For at least five reasons, the study is not "accurate, reliable, and unbiased," as the Information Quality Guidelines require,⁹ and its flawed design thwarted its intended purpose of "predicting emissions for the majority of in-use fuels."¹⁰

⁶ See EPA, Assessing the Effect of Five Gasoline Properties on Exhaust Emissions from Light-Duty Vehicles Certified to Tier 2 Standards: Analysis of Data from EPAct Phase 3 (EPAct/V2/E-89), Final Report (Apr. 2013), <http://bit.ly/2bHswCu>.

⁷ EPA, Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency 15 (Oct. 2002), *available at* <https://www.epa.gov/sites/production/files/2017-03/documents/epa-info-quality-guidelines.pdf>.

⁸ *Id.* at 19.

⁹ *Id.* at 22.

¹⁰ EPAct Final Report, *supra* note 6, at 14.

1. The EPAAct study was designed by self-serving market participants to undermine ethanol, as shown by EPA records obtained through the Freedom of Information Act.
2. The EPAAct test fuels did not “span the ranges of in-use fuel properties,” as the Agency intended. The EPAAct study purported to measure the emissions effects of five important fuel properties (ethanol, aromatics, RVP, T50, and T90) in isolation, by artificially fixing them at pre-determined levels. But this fundamentally flawed “match-blending” methodology resulted in unrealistic test fuels with key parameters far outside the norm. For example, the E10 test fuels’ octane ratings were much higher than normal, because EPA added pollution-causing high-octane hydrocarbons to the ethanol test fuels to artificially match T50 and T90 distillation temperatures, even though refiners reduce these costly additives, allowing distillation temperatures to fall naturally, when they add ethanol.
3. The EPAAct study failed to control for confounding variables. Although EPA tried to control the five target fuel properties, it left many other fuel properties uncontrolled, even though these properties affect emissions. As only one example, the reported results do not account for differences in the test fuels’ octane ratings, which were skewed as noted above, even though the octane additives that EPA used to artificially elevate the ethanol test fuels’ distillation temperatures contribute to pollution.
4. The EPAAct study’s results are flawed because it relied on a biased subset of 12 fuels to measure air toxic species, disproportionately selecting ethanol test fuels that had characteristics associated with high emissions.
5. The EPAAct study was not “complete and unbiased,” because it failed to measure the most harmful pollutants—ultrafine particles and polycyclic aromatic hydrocarbons, which are reduced by ethanol.

As a result of its flawed design and confounding variables, which are explained in detail in the Request for Correction,¹¹ the EPA's study's results are wrong. Indeed, peer reviewed studies contradict the study's conclusions that ethanol increases emissions of several significant pollutants (particulate matter (PM), nitrogen oxide (NO_x), total hydrocarbon (THC), non-methane organic gas (NMOG), non-methane hydrocarbons (NMHC), and formaldehyde).

Because the MOVES2014 model's tailpipe emissions factors are based on the EPA's study and incorporate all its flaws, the model falls short of EPA's information quality standards, for this reason alone. But the MOVES2014 model suffers from several other serious flaws:

First, the MOVES2014 model's evaporative emissions estimates are equally flawed, because the model's ethanol "fuel adjustment" for permeation emissions (one of the key factors in the model's estimate of evaporative emissions) is based on four biased, erroneous studies. These studies were systemically biased against ethanol as a result of confounding variables in their test fuel composition and other problems.

Second, the ethanol fuel adjustment is also inconsistent with the underlying studies on which it is based. For example, EPA's model assumes that adding any amount of ethanol to gasoline has the same effect on permeation emissions—more than doubling them. That assumption is not supported by the underlying studies. The only one of the four studies to test E85 (an alternative fuel with more than 50% ethanol) found that it emitted 28% less pollution through permeation than E0 (gasoline with no ethanol content).

Third, the MOVES2014 models' default fuel parameters are grossly inaccurate as compared to real-world fuel samples. State regulators are required to use the model's default inputs under ordinary circumstances, so the model would generate flawed results even if its emissions factors were correct.

Finally, EPA itself understands that MOVES2014 is out of date. As EPA noted in its Triennial Report to Congress in June: "Comprehensive studies of the impacts of biofuels on the emissions from advanced light-duty vehicle technologies (Tier 3), similar in scope to studies cited in this report for light-duty Tier 2 vehicles, would improve the understanding of

¹¹ RFC, *supra* note 3, at 13–48.

the potential for biofuel-specific pollutants and associated health impacts as new technologies enter the vehicle fleet.” EPA, Biofuels and the Environment: Second Triennial Report to Congress 117 (June 29, 2018) (“Triennial Report”), https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=341491. MOVES2014 and the EPAAct study on which it is based do not provide any information about model year 2017 and later vehicles, which are subject to the more stringent Tier 3 standards promulgated in 2014.

B. EPA’s outdated and flawed MOVES2014 vehicular emissions model is utilized by EPA for purposes of several important EPA actions (and cost-benefit analyses).

Despite the serious flaws described above, EPA uses the MOVES2014 model for purposes of several important EPA actions and analyses.

The MOVES2014 model is highly influential at the state level, and indeed effectively coerces States to abstain from taking actions to improve air quality that otherwise would be allowable (or, in some instances, would otherwise be feasible or more practicable). EPA requires that states in non-attainment use the latest version of the MOVES model available in developing their State Implementation Plans (SIPs) for compliance with the Clean Air Act National Ambient Air Quality Standards (NAAQS) for criteria pollutants.¹² The MOVES2014 model therefore affects the range of “control measures” (e.g., fuel regulations) the States can choose (and EPA can approve) to comply with the NAAQS. The MOVES2014 model’s erroneous fuel effects make it more difficult for States to develop a SIP; they delay compliance with the NAAQS, and they impair air quality.

In addition, States must use the MOVES2014 model to demonstrate whether their federally funded transportation projects comply with their SIP and will not contribute to or worsen a NAAQS violation.¹³ Errors in the MOVES model limit the States’ ability to invest in their transportation infrastructure. Likewise, MOVES influences efforts by EPA or the States to limit or expand the number of “boutique” fuels sold in the States.¹⁴ And MOVES

¹² Official Release of the MOVES2014 Motor Vehicle Emissions Model for SIPs and Transportation Conformity, 79 Fed. Reg. 60343, 60344 (Oct. 7, 2014) (hereinafter Official Release of MOVES2014).

¹³ *Id.*

¹⁴ RFC, *supra* note 3, Exhibit A, at A-74, A-81, A-82, A-83 (-000776, -000790, -000791, -000792).

influences state biofuels regulations and requirements, including provisions that seek to facilitate or encourage the use of biofuels.¹⁵

The MOVES2014 model is also influential at the federal level. In particular, the fuel emissions estimates generated by the model drive several important EPA actions:

First, MOVES will influence EPA's anti-backsliding analysis of the Renewable Fuel Standard (RFS), which is required by section 211(v) of the Clean Air Act (42 U.S.C. § 7545(v)).¹⁶ In response to an EPA Inspector General evaluation, EPA said it planned to use the MOVES2014a model to conduct the antibacksliding assessment of the air quality impacts of the RFS that the law requires.¹⁷

Second, MOVES influences EPA's regulations of mobile source air toxics ("MSATs").¹⁸

Finally, EPA also regularly uses the MOVES model in conducting cost-benefit analysis of major rules promulgated under Title II of the Clean Air Act. For example, EPA used MOVES to quantify the vehicle emission effects of major rules like those that established the current RFS program,¹⁹ the light-duty vehicle greenhouse gas standards,²⁰

¹⁵ *Id.* at A-82 (-000791).

¹⁶ RFC, *supra* note 3, Exhibit A, at A-74, A-83 (-000776, -000792) (The anti-backsliding analysis will "serve as the basis for future fuel decisions by legislators and policy makers.").

¹⁷ U.S. EPA Office of Inspector General, EPA Has Not Met Certain Statutory Requirements to Identify Environmental Impacts of Renewable Fuel Standard, Report #16-P-0275, at 14 (Aug. 18, 2016); 42 U.S.C. § 7545(v).

¹⁸ *Id.* at A-83 (-000792).

¹⁹ See EPA, Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis 504, 514–15 (May 2010).

²⁰ See EPA, Joint Technical Support Document: Final Rulemaking for 2017-2025 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy 4-40, 4-48 (Aug. 2012). The relevance of appropriate modeling to greenhouse gas standards and CAFE requirements is particularly timely now in light of EPA's recent proposal to adjust those standards and requirements, which expressly solicits comments on the relevance of octane, and higher-level ethanol blends, to achieving fuel economy and environmental goals and requirements. National Highway Traffic Safety Administration and EPA, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks 130 (Aug. 2, 2018) (proposed rule) (prepublication version) ("Please comment on the potential benefits, or dis-benefits, of considering the impacts of increased fuel octane levels available to consumers for purposes of the model. More specifically, please comment on how increasing fuel octane levels would play a role in product offerings and engine technologies. Are there potential improvements to fuel economy and CO2 reductions from higher octane fuels? Why or why not? What is an ideal octane level for mass-market consumption balanced against cost and potential benefits? What are the negatives associated with increasing the available octane levels and, potentially, eliminating today's lower octane fuel blends? Please provide supporting data for your position(s)."), <https://www.epa.gov/sites/production/files/2018-08/documents/safe-my-2021-2026->

and the Tier 3 motor-vehicle emission standards.²¹ There is every reason to believe that EPA will rely on MOVES if it undertakes to “reset” renewable fuel volumetric blending requirements pursuant to section 211(o)(7)(F) of the Clean Air Act, which will require EPA to consider environmental effects.²²

The use of the MOVES2014 model for any of these purposes could result in counterproductive policies that would worsen the Nation’s air quality and harm the economy, even with the most transparent and consistent cost-benefit guidelines. EPA’s use of flawed scientific modeling in such regulatory analyses inevitably produces inaccurate assessments of costs and benefits. It diminishes the reliability and value of EPA’s conclusions—and diminishes the public’s trust in EPA as a regulator.

II. EPA SHOULD IMPLEMENT SAFEGUARDS TO ENSURE THAT ONLY HIGH-QUALITY MODELS ARE USED IN COST-BENEFIT ANALYSES.

EPA should adopt (and thus, in this rulemaking process, should expressly solicit comment on) safeguards to ensure that scientific models used to assess the costs and benefits of major rules are of high scientific quality. And EPA should correct the errors of the MOVES2014 model. As further explained in the RFC, in the short term, EPA should immediately cease disseminating erroneous information from the EPAct study and

cafe-ld-ghg-nhtsa-epa-nprm-2018-08-02.pdf; *id.* at 843; *id.* at 893–94 (“EPA received input from renewable fuel industry stakeholders and from the automotive industry supporting high octane blends as a way to enable GHG reducing technologies such as higher compression ratio engines. Stakeholders suggested that mid-level (e.g., E30) high octane ethanol blends should be considered and that EPA should consider requiring that mid-level blends be made available at service stations. Higher octane gasoline could provide manufacturers with more flexibility to meet more stringent standards by enabling opportunities for use of lower CO₂ emitting technologies (e.g., higher compression ratio engines, improved turbocharging, optimized engine combustion). EPA requests comment on if and how EPA could support the production and use of higher octane gasoline consistent with Title II of the Clean Air Act.”).

²¹ See EPA, Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards Final Rule Regulatory Impact Analysis 7-5 (Mar. 2014).

²² See 42 U.S.C. § 7545(o)(2)(B)(ii) (requiring analysis of “the impact of the production and use of renewable fuels on the environment, including on air quality, climate change, conversion of wetlands, ecosystems, wildlife habitat, water quality, and water supply”); *id.* § 7545(o)(7)(F) (in resetting biofuel volumes, EPA must “comply with the processes, criteria, and standards set forth in paragraph (2)(B)(ii)”); see also EPA, Renewable Fuel Standard Program: Standards for 2018 and Biomass-Based Diesel Volume for 2019, 82 Fed. Reg. 34206, 34207, 34211 (Jul. 21, 2017) (proposed rule) (noting that “the [EPA] Administrator has directed staff to begin technical analysis to inform a future reset rulemaking action”; citing environmental impact analysis requirement); EPA, Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis 504, 514–15 (May 2010).

MOVES2014 model. Until a corrected model can be developed following notice and comment rulemaking and review by the Science Advisory Board, EPA should immediately lock the model's ethanol parameter at 10% to prevent spurious estimates of ethanol's emissions effects.²³ In the longer term, EPA must promptly perform a new vehicle-fuel study using appropriate test fuels that does not replicate the flaws of the EPAAct study or of MOVES2014.²⁴

EPA is required by law to review and, if necessary, revise" its emission factors every three years.²⁵ EPA has already recognized the need to update the emissions factors in MOVES2014 to account for the cleaner vehicles on the road today.²⁶ But OTAQ seems to be positioning itself to undertake that update *after* conducting an anti-backsliding study of ethanol's emissions effects that inevitably will be skewed by MOVES2014's anti-ethanol bias.²⁷ EPA should update the MOVES model without delay—and correct its erroneous modeling of ethanol's emissions effects in the process. If EPA conducts the anti-backsliding study and other important regulatory actions with an outdated and biased model, those actions will incur unnecessary legal risks, and their effectiveness will be undermined.

²³ See RFC, *supra* note 3, at 4, 61.

²⁴ See *id.* at 61.

²⁵ 42 U.S.C. § 7430.

²⁶ See Triennial Report 117, *supra* p. 5.

²⁷ See Declaration of Chris Grundler, Doc. 27-2, at 14–15, *Sierra Club v. Wheeler*, No. 17-2174 (D.D.C. Aug. 13, 2018) (After conducting the anti-backsliding study, in “[a]ssessing emissions impacts of control options,” “[i]f key data gaps exist, we may need to develop a new modeling algorithm, or design and implement a new vehicle/engine emissions test program.”)

Message

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 5/7/2017 8:43:06 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Re: Following up

Perfect. Where shall I meet you?

Adam

From: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>
Date: Sunday, May 7, 2017 at 4:27 PM
To: Adam Gustafson <gustafson@boydengrayassociates.com>
Subject: Re: Following up

Hey Adam,
Would 1 to 2 work on Wednesday?
Best,
Mandy
Sent from my iPhone

On May 4, 2017, at 12:03 PM, Adam Gustafson <gustafson@boydengrayassociates.com> wrote:

Thank you, Mandy.

I am available tomorrow by phone: Ex. 6

Next week I could meet in person Tuesday after 11am, all day Wednesday, and all day Friday.

Let me know what you'd prefer. Thanks.

Adam

From: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>
Date: Thursday, May 4, 2017 at 11:50 AM
To: Adam Gustafson <gustafson@boydengrayassociates.com>
Subject: Re: Following up

Thank you Adam. I had to fly down to Florida and my reading materials for the flight included your leave behind packet (which was one of the best leave behinds I've ever received).

As you know, RVP is a hot topic, more so after yesterday. Are you available 2 to 3 tomorrow? I can figure out times next week if that doesn't work.

Best,

Mandy

Sent from my iPhone

On May 4, 2017, at 10:52 AM, Adam Gustafson <gustafson@boydengrayassociates.com> wrote:

Mandy,

During our meeting last week with Administrator Pruitt and Boyden Gray, Mr. Pruitt suggested you and I should follow up on some of the issues we discussed:

- clean-octane certification fuel,
- sub-sim interpretation,
- RVP one-pound waiver,
- fuel economy calculation/R-factor,
- lifecycle GHG analysis for ethanol/Biofuels Report to Congress, and
- MOVES2014 emissions model

I hesitate to reach out, because I know you're juggling a thousand different matters. But I'm eager to talk or meet when the time is right, and to send whatever additional materials would be helpful.

When would you would like to follow up?

Adam

Adam R.F. Gustafson
Partner | **BOYDEN GRAY & ASSOCIATES**
801 17th Street NW, Suite 350
Washington, DC 20006
Cell: **Ex. 6**
Fax: 202-955-0621
gustafson@boydengrayassociates.com

Message

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 6/14/2017 6:20:10 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Re: RVP
Attachments: Yanowitz Testimony re E15 Emissions 20170614.pdf

Mandy,

I'd be interested to hear your take on today's EPW hearing on the Consumer and Fuel Retailer Choice Act (the 1 psi RVP waiver bill). It was not broadcast on C-SPAN, so I haven't seen the live testimony. But Janet Yanowitz's written statement is a useful summary of the relevant emissions studies (attached). It is consistent with our memo.

I'd also be interested to hear any reactions from OGC and OTAQ to our memo whenever a further conversation would be useful.

You can reach me at **Ex. 6** if you'd like to discuss.

Adam

From: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>
Date: Tuesday, May 30, 2017 at 11:24 PM
To: Adam Gustafson <gustafson@boydengrayassociates.com>
Cc: Andrew Varcoe <avarcoe@boydengrayassociates.com>, James Conde <conde@boydengrayassociates.com>
Subject: Re: RVP

Thank you, Adam. I appreciate the time you've put into this. I just forwarded it to the rest of our team and asked the program and OGC folks to use it to develop options/response.

I'll be in touch to discuss further.

Best,
Mandy

Sent from my iPhone

On May 30, 2017, at 11:11 PM, Adam Gustafson <gustafson@boydengrayassociates.com> wrote:

Mandy,

Thank you for the opportunity to meet with you and your colleagues last week to discuss EPA's legal authority to extend the 1 psi RVP waiver to E15. Here is our promised memo explaining why the various solutions we discussed are tools in EPA's regulatory toolbox.

We would welcome another conversation whenever that would be useful.

Adam

Adam R.F. Gustafson

Partner | **BOYDEN GRAY & ASSOCIATES**

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Washington, DC 20006

Cell: Ex. 6

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gustafson@boydengrayassociates.com

<RVP Waiver Memo 20170530e.pdf>

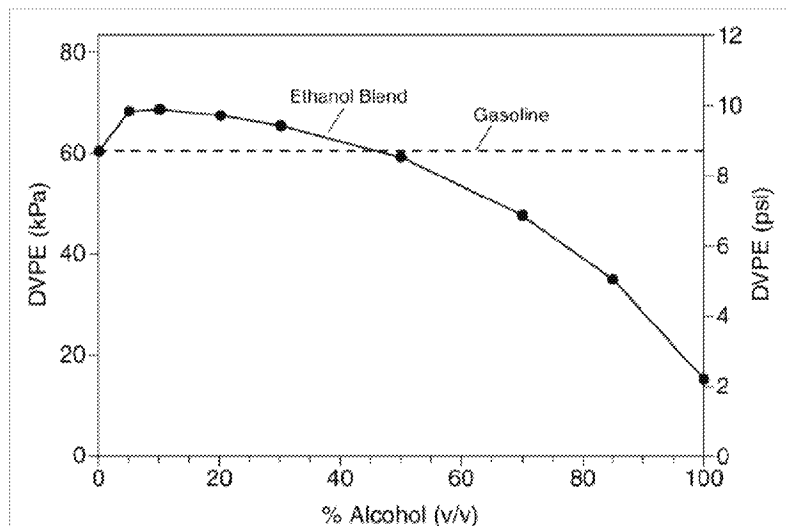
**Testimony of
Janet Yanowitz, P.E., Ph.D.
Principal, EcoEngineering, Inc.
The United States Senate Committee on Environment and Public Works
Hearing On S.517, Consumer and Fuel Retailer Choice Act
June 14, 2017**

This testimony summarizes the air emission impacts of using E15 (fuel which is 15% ethanol, 85% petroleum based) in place of E10 (fuel which is 10% ethanol, 90% petroleum based). It is provided to the Senate Committee on Environment and Public Works so that they may assess the effects of Senate Bill, S.517, that would allow E15 to have the same 1 psi vapor pressure allowance or waiver currently permitted for E10 (see box next page on regulatory background). At this time virtually all of the fuel sold in the U.S. is E10 and extending the 1 psi waiver to higher ethanol fuels will encourage the use of E15 in place of E10.

This report focuses primarily on the pollutants which impact ground-level ozone, i.e. volatile organic compounds (VOCs) and nitrogen oxides (NO_x).

Fuel effects on motor vehicle emissions are difficult to quantify because

Impact of Ethanol on Vapor Pressure. The addition of 10% ethanol to a base hydrocarbon blendstock results in a roughly 1 psi (6.9 kPa) increase in vapor pressure. The addition of 15% ethanol to the same blendstock results in almost exactly the same impact on the vapor pressure. Dry vapor pressure equivalent, or DVPE, is the modern equivalent of Reid vapor pressure, or RVP.



different vehicles can behave quite differently. Nonetheless it can be concluded that replacing E10 with E15 that benefits from the same 1 psi waiver is a small change with minimal emissions impacts according to the best available emissions test data. On average, the total tailpipe organic emissions and the ozone forming potential of those organics will be expected to decrease or stay the same, and NO_x is expected to be unchanged with a move to E15. Ethanol and acetaldehyde emissions will likely increase. Carbon monoxide will decrease.

This analysis is based on studies reported in the peer-reviewed scientific literature and by the coalition of petroleum and automobile companies that make up the Coordinating Research Council or CRC.

Perhaps the most applicable study was done in 2008 by a team comprised of scientists from three national laboratories.¹ They conducted emissions testing on 16 vehicles, model years ranging from 1999 through 2007 using E0, E10, E15 and E20. They found that increasing the ethanol content resulted in no significant effect on NO_x or organic tailpipe emissions although the results varied widely among vehicles; CO emissions were reduced and ethanol and acetaldehyde emissions increased. Some of those results are shown in the figure below.

Regulatory Background. Ethanol and gasoline fuel mixtures are in common use in the United States with E10 (10% ethanol, 90% gasoline blendstock) comprising more than 90% of the retail fuel supply in recent years. In October 2010, the EPA expanded the use of ethanol by granting a waiver to allow the retail sale of concentrations of up to 15% ethanol in gasoline (E15) for use in light-duty on-highway vehicles model year 2007 and later. In January 2011, the waiver was expanded to allow the use of ethanol in older light-duty vehicles, model years 2001 to 2006.

When ethanol was first permitted as an additive in gasoline at concentrations of up to 10% in 1979, its effect on vapor pressure was not regulated. However, beginning with the implementation of the Clean Air Act Amendments of 1990, the United States Environmental Protection Agency (EPA) set the same maximum allowable RVP for both gasoline and gasoline/ethanol blends: for the summer high ozone season, 9.0 psi, with more stringent standards set for nonattainment areas. (The summertime high ozone season has been determined by the EPA to run from June 1 to September 15.)

However, only two years later, new EPA regulations (40 CFR 80.27) provided a 1-psi waiver for ethanol blends that contained between 9 and 10 percent ethanol. The purpose of the 1-psi waiver was to support the emerging ethanol industry. At that time EPA believed it would be difficult to economically justify a separate storage and distribution system for the small amount of lower vapor pressure gasoline needed for ethanol blending, with the result that low RVP fuel for ethanol blending would not be made available. The waiver allowed E10 to be made with the same gasoline distributed as fuel to be used without ethanol addition.

Today the 1 psi waiver is not available for E15. Because it is not, lower cost (i.e. higher DVPE) blendstock can be used with E10 than in E15 with the result that little E15 is marketed.

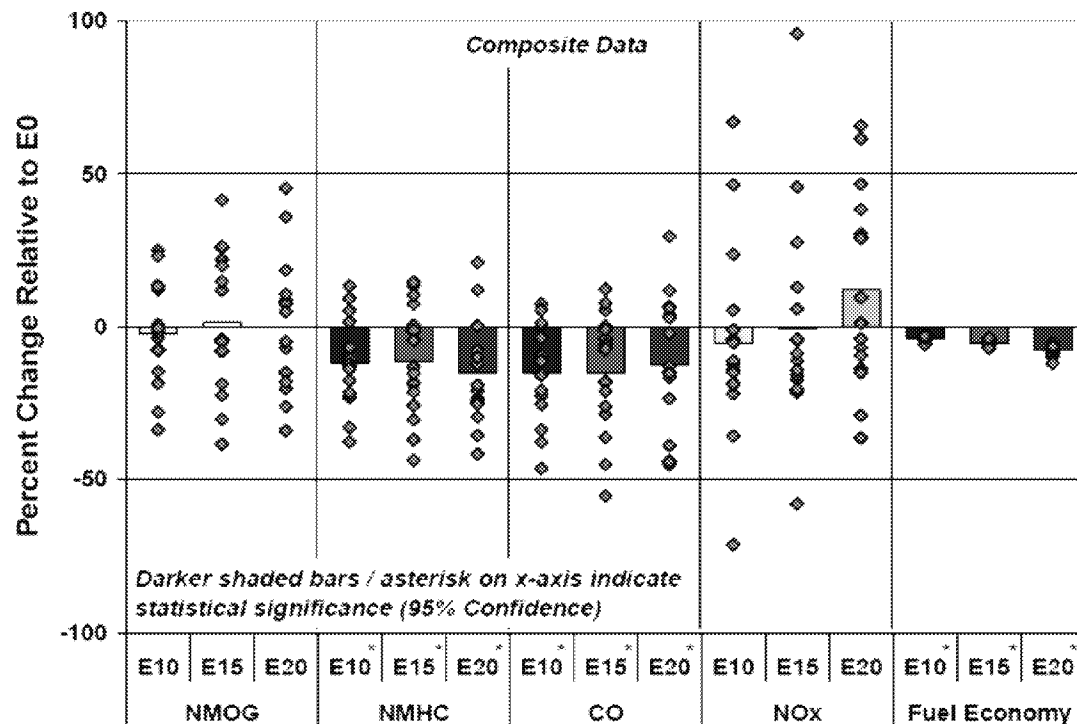


Figure 2. Percentage change in emissions from vehicles using different ethanol content fuels.³ Diamonds are individual emissions measurements, bars are average emission results. NMOG = non-methane organic gas; NMHC = non-methane hydrocarbons.

Similar results on three post 2001 model year vehicles were reported by Karavalakis and his colleagues at UC Riverside (one of which was not tested on E15 but was tested on E20).^{2,3} The CRC also reported that increased ethanol content up to 20% ethanol reduced CO emissions (based on testing of E0, E10 and E20), although the same study also reported an increase in NOx emissions with higher ethanol content.⁴ Air Improvement Resources, Inc.⁵ analyzed the results of the twelve 2001 and newer vehicles included in another DOE study⁶ tested on E0, E10, E15 and E20 and found that non-methane hydrocarbons (NMHC), carbon monoxide and NOx trended slightly lower with higher ethanol contents. In another study conducted by a subcontractor to NREL, NMHC and carbon monoxide emissions were either equal or lower for six vehicles aged and then emissions tested on E15 versus E0, and NOx emissions were not statistically different.⁷

The total amount and composition of the organics emitted provides a rough gauge of the ozone forming potential of the emissions, as not all organics are equally prone to reacting to form ozone. Thus studies which considered the reactivity of the specific organics released are more accurate at determining the ozone forming potential of the emissions. The UC Riverside team

did this analysis for emissions from two 2012 model year vehicles and found that the ozone reactivity for emissions from E15 were less than those for E10 as shown in the figure below.

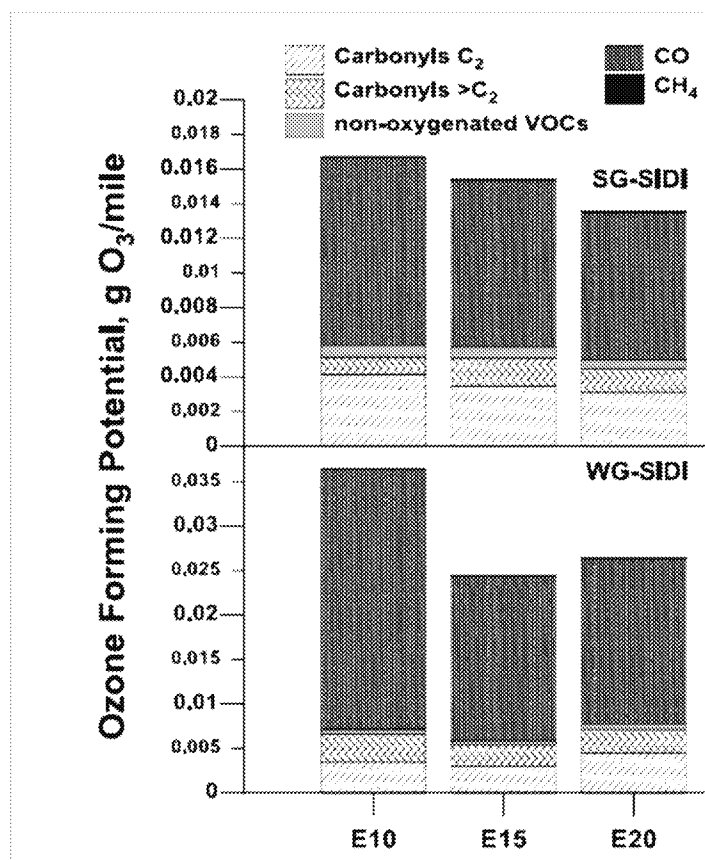


Figure 3. Ozone forming potential of exhaust from vehicles using different ethanol content fuels.⁴

Although, testing on flex-fuel vehicles may not be representative of non-flex-fuel vehicles, it does seem likely that changes in ethanol content would have the same effect on the relative proportion of different organics in the exhaust. For that reason, I also considered the results reported by the CRC in 2011. They found that the ozone forming potential of flex-fuel vehicles did not increase with increased ethanol content in the fuel and in one case decreased.⁸

In addition to tailpipe emissions, vehicles emit additional organic compounds to the atmosphere via evaporation or permeation. There have been no significant studies comparing evaporative emissions of E15 and E10. Two studies^{9,10} made with E20 and E10 show mixed results, suggesting that increases in evaporative emissions between vehicles using E10 and E15 of the same vapor pressure are small or non-existent. In another study, limited data from the testing of four vehicles using E0 and E15 showed no significant differences between the two fuels.¹¹

In conclusion, the available emissions test data indicates that replacing E10 with an E15 of the same vapor pressure will cause a slight decrease in emissions of ozone forming organic compounds and carbon monoxide, and no change in NOx.

¹ Knoll, K., B. West, S. Huff, J. Thomas, J. Orban, C. Cooper, "Effects of Mid-Level Ethanol Blends on Conventional Vehicle Emissions," SAE Technical Paper No. 2009-01-2723, 2009, doi:10.4271/2009-01-2723.

² Karavalakis, G., D. Short, D. Vu, R.L. Russell, A. Asa-Awuku, H. Jung, K.C. Johnson, T. D. Durbin, "The impact of ethanol and iso-butanol blends on gaseous and particulate emissions from two passenger cars equipped with spray-guided and wall-guided direct injection SI (spark ignition) engines, *Energy*, 82 (2015)168-179.

³ Karavalakis, G., T.D. Durbin, M. Shrivastava, Z. Aheng, M. Villela, H. Jung, "Impacts of ethanol fuel level on emissions of regulated and unregulated pollutants from a fleet of gasoline light-duty vehicles," *Fuel* (3 (2012) 549-558.

⁴ CRC E-74b, Effects of Vapor Pressure, Oxygen Content and Temperature on CO Exhaust Emissions, May 2009 https://crcao.org/reports/recentstudies2009/E-74b/E-74b%20Revised%20Final_Report_SR20090503.pdf, accessed June 9, 2017.

⁵ Air Improvement Resources, Effects of E15 Ethanol Blends on HC, CO and NOx Regulated Emissions from On-Road 2001 and Later Model Year Motor Vehicles, July 15, 2011

⁶ Knoll, K., B. West, W. Clark, R. Graves, J. Orban, S. Przesmitzki, T. Theiss, Effects of Intermediate Ethanol Blends on Legacy Vehicles and Small Non-Road Engines, February 2009, NREL/TP-540-43543; ORNL/TM-2008/117..

⁷ Vertin, K., G. Glinsky, A. Reek, Comparative Emissions Testing of Vehicles Aged on E0, E15 and E20 Fuels, SGS Environmental Testing Corporation, Aurora, CO, NREL/SR-5400-55778.

⁸ CRC E-80, Exhaust and Evaporative Emissions Testing of Flexible-Fuel Vehicles, August 2011. <https://crcao.org/reports/recentstudies2011/E-80/E-80%20Final%20Report+Appendices.pdf>, accessed June 9, 2017.

⁹ CRC E- 65-3, Fuel Permeation form Automotive Systems: E0, E6, E10, E20 and E85, December 2006, accessed June 9, 2017.

¹⁰ CRC E 77-2, Enhanced Evaporative Emission Vehicles, March 2010, accessed June 9, 2017.

¹¹ Vertin, K., G. Glinsky, A. Reek, Comparative Emissions Testing of Vehicles Aged on E0, E15 and E20 Fuels, SGS Environmental Testing Corporation, Aurora, CO, NREL/SR-5400-55778.

Message

From: David Schwietert [DSchwietert@autoalliance.org]
Sent: 2/20/2018 2:51:23 PM
To: Atkinson, Emily [Atkinson.Emily@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Harlow, David [harlow.david@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Sheila James [sjames@autoalliance.org]; Mitch Bainwol [MBainwol@autoalliance.org]; Chris Nevers [CNevers@autoalliance.org]; 'Williams, Tiffani' [tiffani@daschlegroup.com]; 'Bethany Davis' [bethany@boydengrayassociates.com]; 'C Boyden Gray' [cbg@cboydengray.com]; 'Adam Gustafson' [gustafson@boydengrayassociates.com]; Jennifer Thomas [JThomas@autoalliance.org]
Subject: RE: Meeting request with Assistant Administrator Wehrum - Wednesday, February 21st

Emily,

Thanks for confirming that Bill Wehrum, Mandy Gunasekara and David Harlow are available for a 30 minute meeting tomorrow Wednesday, February 21 at 9:00am.

We very much appreciate the opportunity to sit down.

Below is the expected attendees and I'll advise if there's anything that changes. We'll plan on arriving 10-15 minutes ahead of the meeting to check in and clear security at the north entrance.

Thanks,

Dave

Expected attendees:

- Mitch Bainwol, President and CEO of the Auto Alliance;
- C. Boyden Gray,
- Adam Gustafson,
- Tiffani Williams, The Daschle Group
- Dave Schwietert, SVP Federal Affairs – Auto Alliance
- Chris Nevers, VP Energy and Environment – Auto Alliance

From: David Schwietert
Sent: Wednesday, February 14, 2018 6:33 PM
To: Atkinson, Emily <Atkinson.Emily@epa.gov>; 'Lewis.Josh@epa.gov' <Lewis.Josh@epa.gov>; 'harlow.david@epa.gov' <harlow.david@epa.gov>; 'Gunasekara.mandy@epa.gov' <Gunasekara.mandy@epa.gov>
Cc: Sheila James <sjames@autoalliance.org>; Mitch Bainwol <MBainwol@autoalliance.org>; Chris Nevers <CNevers@autoalliance.org>; 'Williams, Tiffani' <tiffani@daschlegroup.com>; 'Bethany Davis' <bethany@boydengrayassociates.com>; 'C Boyden Gray' <cbg@cboydengray.com>; 'Adam Gustafson' <gustafson@boydengrayassociates.com>; Jennifer Thomas <JThomas@autoalliance.org>
Subject: Meeting request with Assistant Administrator Wehrum - Wednesday, February 21st

Josh, Emily, David, and Mandy,

I wanted to reach out to request a meeting next Wednesday morning (2/21) with Bill Wehrum to allow both the Auto Alliance and Boyden Gray to discuss potential issues related to the way that E10 Test Fuel is accounted for as part of a yet to be released Notice of Proposed Rulemaking.

This subject is of mutual interest to the Auto Alliance and the biofuel community when it comes to fuel economy and GHG testing. We felt it would be worthwhile if we had an opportunity to catch the Assistant Administrator to outline some issues.

Understanding that this meeting request is only a week away, due to scheduling challenges we would be appreciative if the Assistant Administrator had 20-30 minutes to meet with us Wednesday morning between 9:00-11:30 AM

Expected attendees would include:

Mitch Bainwol, President and CEO of the Auto Alliance;
Boyden Gray,
Adam Gustafson,
Tiffani Williams, The Daschle Group
Dave Schwietert, SVP Federal Affairs – Auto Alliance
Chris Nevers, VP Energy and Environment – Auto Alliance

Please let either of us know if you have any questions regarding this request.

Thanks,

Dave

David Schwietert
Executive Vice President, Federal Government Relations & Public Policy
P: 202-326-5521 | dschwietert@autoalliance.org



AUTO ALLIANCE
DRIVING INNOVATION®

ALLIANCE OF AUTOMOBILE MANUFACTURERS

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Suite 300
Washington, DC 20001

Main Phone: 202-326-5500
Main Fax: 202-326-5567

<https://autoalliance.org/>

Curious to know how the Auto sector impacts your state or district -- [Click here](#). To get a better understanding of how America's automobile industry is one of the most powerful engines driving the U.S. economy, [click here](#).

Message

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 2/7/2019 7:41:43 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Congrats!

Mandy,

I'm sorry to hear you'll be leaving EPA, but it sounds like you've got big plans in the works. Congratulations on your successes, and good luck with your new organization!

Adam

Adam R.F. Gustafson
Partner | **BOYDEN GRAY & ASSOCIATES**
801 17th Street NW, Suite 350
Washington, DC 20006
Cell: Ex. 6
Fax: 202-955-0621
gustafson@boydengrayassociates.com

Message

From: Bethany Davis [bethany@boydengrayassociates.com]
Sent: 5/4/2017 2:29:36 PM
To: Hupp, Sydney [hupp.sydney@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: RE: Mandy Gunasekara

Thank you.

Bethany Davis Horyn | BOYDEN GRAY & ASSOCIATES
801 17th ST NW, Suite 350
Washington, DC 20006
Tel: 202-706-5491 | Fax: 202-955-0621

From: Hupp, Sydney [mailto:hupp.sydney@epa.gov]
Sent: Thursday, May 04, 2017 10:29 AM
To: Bethany Davis <bethany@boydengrayassociates.com>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: RE: Mandy Gunasekara

Hey Bethany! Looping in Mandy.

Thanks!

Sydney Hupp
Executive Scheduler
Office of the Adminsitrator

Ex. 6 (c)

From: Bethany Davis [mailto:bethany@boydengrayassociates.com]
Sent: Thursday, May 4, 2017 10:26 AM
To: Hupp, Sydney <hupp.sydney@epa.gov>
Subject: Mandy Gunasekara

Sydney,

Can I get contact information for Mandy for Amb. Gray?

Thank you,

Bethany Davis Horyn | BOYDEN GRAY & ASSOCIATES
801 17th ST NW, Suite 350
Washington, DC 20006
Tel: 202-706-5491 | Fax: 202-955-0621

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 4/4/2018 9:10:19 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: lifecycle analysis of corn ethanol
Attachments: 3-26-18 USEPA response letter RE LCA update request letter to Pruitt from NCGA and 18 states.pdf; 2-23-18 LCA update request letter to Pruitt.pdf

Mandy,

I just spoke with Alex about this letter from Karl Simon, which responds to the attached letter to Administrator Pruitt from the National Corn Growers Association and 18 state corn growers associations. I would be grateful for a chance to discuss this with you.

The Corn Growers' letter asked EPA to use the forthcoming Triennial Report to Congress as an occasion to update its lifecycle analysis of corn ethanol's greenhouse gas effects using the best available science. EPA's 2010 estimate now lags behind more recent analyses by the Department of Energy and USDA. EPA's outdated numbers are hurting U.S. ethanol exports, because foreign countries look to EPA's lifecycle analysis to evaluate the impact of ethanol imports on their own greenhouse gas standards.

We appreciate Mr. Simon's acknowledgement that "new research since the 2010 LCA has improved our understanding of biofuel lifecycle GHG emissions," and we are glad that his letter does not rule out the possibility of an updated lifecycle analysis in the forthcoming Triennial Report to Congress.

But the overall thrust of Mr. Simon's letter gives the impression that OTAQ has no intention of updating its lifecycle analysis. Indeed, that is what OTAQ told EPA's Inspector General in 2016. The IG noted that "ensuring the GHG lifecycle analysis is current could provide other benefits, such as informing EPA's decisions on setting RFS volumes after 2022." (IG Report No. 16-P-0275, at 9). Because of the significant economic and policy implications of this decision, we are concerned that it may not be an appropriate subject for delegation to OTAQ alone.

Mr. Simon's letter seems to be based on some significant misunderstandings:

- Both the Department of Energy's GREET model and USDA's study include land-use change emissions, as required by the Clean Air Act's definition of "lifecycle greenhouse gas emissions." 42 U.S.C. 7545(o)(1)(H).
- That law does not require any particular methodology, and USDA's report uses the same lifecycle emission categories as EPA's 2010 lifecycle analysis.
- Mr. Simon says that "given the inherent uncertainty associated with modeling of indirect emissions, the overall conclusions we can draw from this body of modelling have not

changed.” To the contrary, new empirical data proves that EPA’s modeling grossly overestimated corn ethanol’s effect on indirect land-use change and other factors.

- The GTAP-BIO model has been updated significantly since EPA declined to use it in 2010. By contrast, EPA’s own land-use change model has not been revised, despite contrary evidence.
- Mr. Simon’s view that EPA’s lifecycle analysis “may not apply to other situations or policies” has not stopped foreign countries from restricting their imports of U.S. ethanol based on EPA’s outdated science.

In addition to speaking with you and Assistant Administrator Wehrum about the Biofuels Report to Congress, we have spoken with USDA, which is keenly interested in EPA’s lifecycle analysis. I would be happy to discuss this further.

Thank you.

Adam

Adam R.F. Gustafson

Partner | **BOYDEN GRAY & ASSOCIATES**

801 17th Street NW, Suite 350

Washington, DC 20006

Cell: **Ex. 6**

Fax: 202-955-0621

gustafson@boydengrayassociates.com

February 23, 2018

Administrator Scott Pruitt
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

Dear Administrator Pruitt:

We respectfully request the Environmental Protection Agency (EPA) adopt an updated lifecycle analysis for corn ethanol. EPA's lifecycle analysis was originally established in 2009 and published in the regulatory impact analysis to a 2010 Renewable Fuel Standard (RFS) rule; this analysis does not reflect improvements in corn and ethanol production since then. Adopting an updated analysis would help fulfill the Trump Administration's pledge to rely on sound science and transparency. Over the last eight years, our organizations and others appealed to the previous administration and the career experts at EPA to update these numbers to no avail.

EPA's forthcoming Triennial Report to Congress offers a new opportunity for the Agency to correct these outdated estimates and take advantage of recent lifecycle analysis updates completed by other federal agencies and university researchers. The U.S. Department of Energy (DOE), through Argonne National Laboratory, and the U.S. Department of Agriculture have both been working on updating the input data for corn and ethanol production, improving models, vetting the results, and using the latest analytical resources to develop the most accurate lifecycle numbers possible. Many universities such as Purdue, the University of Illinois at Chicago, and Iowa State show similar improvements. Most of these recent modeling results have been published in peer-reviewed journals.

While lifecycle analysis for corn ethanol may seem less important now for the administration of the RFS, the lifecycle values of biofuels have become very important in global ethanol export markets. EPA's outdated life cycle estimates may now seriously impact corn ethanol exports to foreign markets such as Japan, Brazil, Europe, and South Korea, which are establishing their own greenhouse gas (GHG) standards and/or evaluating ethanol imports based on EPA's outdated lifecycle numbers. Specifically, in the short term, if these numbers are not updated, the United States risks losing export opportunities to competing sugarcane ethanol from Brazil.

For example, the United States recently had the opportunity to compete for ethanol as a feedstock for ETBE exports to Japan. The U.S. Grains Council (in cooperation with agribusiness groups, ethanol organizations, and with university input) demonstrated the significant improvements in the lifecycle emissions of corn ethanol over the past decade, using both the USDA lifecycle analysis estimates and the DOE Argonne model. Due to the differences in the more recent lifecycle analysis from USDA and the outdated estimates from EPA, the U.S. ethanol industry spent additional resources to educate the Japanese authorities on the discrepancies between the USDA and EPA lifecycle analyses. Ultimately, Japanese authorities

accepted the USDA methodology. Attached to this letter is a table used in Japan's original analysis of corn-based ethanol.

As you may know, Brazil became our largest foreign market for corn ethanol in 2016 and remained our largest market in 2017, importing 446 million gallons. Unfortunately, in a move to limit U.S. access to its market, Brazil has implemented a tariff rate quota (TRQ) for ethanol imports. With the TRQ, a tariff is applied to purchases from the U.S. after a 150 million liter (39.6 million gallon) per quarter quota is met.

The original argument for a tariff was based on Brazil's purported interest in reducing carbon emissions from fuel. Brazilian regulators used the 2010 study from the EPA website to arrive at an estimated duty rate slightly below 20 percent. If Brazil had used figures from the USDA study released in December 2016, the same Brazilian formula results in a tariff of just 2.7 percent. The outdated EPA numbers hold the potential to reduce ethanol export opportunities and negatively impact U.S. jobs and the rural economy.

Outdated data and poor models could cause the U.S. corn and ethanol producers to lose market access. These losses will further the economic crisis for corn growers currently struggling with stagnant demand and low prices. Countries that are establishing carbon standards realize that blending ethanol has major GHG reducing impacts and will move to encourage its usage. GHG criteria are important to work the U.S. ethanol industry is carrying out in Colombia, Japan, the EU, and Canada. We expect even more countries will examine the GHG reducing properties of ethanol over the next few years, but they will not choose U.S. ethanol when they rely on the 2010 EPA lifecycle analysis.

We encourage your agency to adopt either DOE/Argonne's latest published results or USDA's recently reported data. We would also be pleased to work with you and your staff to provide information regarding improvements in corn production to help inform EPA's forthcoming Triennial Report.

Sincerely,

Mike Lefever
Colorado Corn Administrative Committee President

Dave Eckhardt
Colorado Corn Growers Association President

Aron Carlson
Illinois Corn Growers Association President

Paul Jeschke
Illinois Corn Marketing Board Chairman

Sarah Delbecq
Indiana Corn Growers Association President

Mark Recker
Iowa Corn Growers Association President

Dennis McNinch
Kansas Corn Commission Chairman

Ken McCauley
Kansas Corn Growers Association President

Mark Roberts
Kentucky Corn Growers Association

Jason McConnachie
Michigan Corn Growers Association President

Kirby Hettver
Minnesota Corn Growers Association President

Kyle Kirby
Missouri Corn Growers Association President

David Merrell
Nebraska Corn Board Chairman

Dan Wesely
Nebraska Corn Growers Association President

Carson Klosterman
North Dakota Corn Growers Association President

Jed Bower
Ohio Corn and Wheat Growers Association President

Troy Knecht
South Dakota Corn Growers Association President

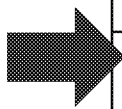
Casey Kelleher
Wisconsin Corn Growers Association President

Kevin Skunes
National Corn Growers Association President

Encl.: Basic Concepts of GHG Emission Reduction Requirement
cc: Secretary Sonny Perdue, U.S. Department of Agriculture
Secretary Rick Perry, U.S. Department of Energy

Basic Concepts of GHG Emission Reduction Requirement

- It is important to establish the GHG emission reduction requirement that is at least targeting CO₂ reduction not weaker than other countries, and that possess sufficient effects from the point of efficient biomass utilization.
- Taking into consideration availability of biofuel meeting the requirement, it is decided to be up from 50% gasoline equivalent to 55% gasoline equivalent.

		Values when the current requirements were established (2011)	At present (January 1, 2018 for EU)
<div>Europe and the U.S.</div> 	Europe (RED)	35%	50% (Plant built before October 5, 2015) 60% (Plant built before October 5, 2015)
	UK (RTFO)	50%	Same as RED
	US (RFS2)	Existing: 20% Next generation: 50-60%	No changes of the requirements but the target volume of advanced biofuel introduction has been increasing
Japan	GHG emission reduction by woodchip biomass generation	42.8 gCO ₂ /MJ (52.4% reduction compared with gasoline)	47.5 gCO ₂ /MJ (56.5% reduction compared with gasoline)
	Available biofuel	Brazil	Brazil U.S. (domestic next generation)

Summary on the Concept of Proposed Standards (Public Notice) for the Next Policy

- The term for the next policy will be 5 years (2018-2022) with the target volume of bioethanol introduction will be 500,000 KL gasoline equivalent each year.
- The new LCA assessment value for GHG emission (standard value) for U.S. corn bioethanol will be newly established.
- The GHG emission reduction requirement will be raised from 50% gasoline equivalent to 55% gasoline equivalent, in order that at least targets CO₂ reduction not weaker than other countries, and that possesses sufficient effects from the point of efficient biomass utilization.
- From the point of view of competition with food crops and self-sufficiency, development of domestic next generation biofuel will be continued.
- The target volume and required policy will be determined in the next minor revision scheduled to be early 2020.

The treatment of biodiesel and other biofuel will continue to be discussed.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

RECEIVED
APR 04 2018

MAR 26 2018

BY:

OFFICE OF
AIR AND RADIATION

Ms. Tricia Braid
Illinois Corn Communications Director
14129 Carole Drive
Bloomington, Illinois 61705

Dear Ms. Braid:

Thank you for your letter of February 23, 2018, on behalf of 19 signators to U.S. Environmental Protection Agency Administrator E. Scott Pruitt requesting that EPA adopt an updated analysis of the lifecycle greenhouse gas (GHG) emissions associated with corn starch ethanol. The Administrator requested that I respond on his behalf.

The Office of Transportation and Air Quality is responsible for implementing the Renewable Fuel Standard (RFS) program, including evaluation of biofuel lifecycle GHG emissions. Your letter says that EPA's lifecycle analysis of corn ethanol for the March 2010 Renewable Fuel Standard (RFS) rule (the "2010 LCA") is outdated and needs to be updated to reflect improvements in corn and ethanol production. However, for many of the reasons alluded to in your letter, the direct impacts of modifying our corn starch LCA on the RFS program may be quite limited due to the "grandfathering" exemptions and other definitions contained in the Clean Air Act (CAA):

- **The vast majority of corn starch ethanol currently produced in the U.S. is exempt from the 20 percent GHG reduction requirement to qualify as renewable fuel.¹ CAA 211(o)(2)(A)(i) and 40 CFR 80.1403(d) exempt from the GHG requirements renewable fuel produced at facilities that commenced construction after December 19, 2007, or at ethanol plants fired by natural gas or biomass that commenced construction prior to December 31, 2009.**
- **Modifying the 2010 LCA would have no direct impact on the RFS status of existing ethanol plants, even those that are not grandfathered.** Under CAA 211(o)(4)(G), any change in analytical methodology compared to the 2010 LCA, "shall only apply to renewable fuel from facilities that commence construction after the effective date of such adjustment, revision, or change."

¹ In 2017, 14.86 billion RINs were generated for conventional (D-code 6) ethanol. Technically, not all of this ethanol was produced from corn starch (it could be from other starches such as sorghum). Of those 14.86 billion RINs, 13.24 billion or 89% were generated using a grandfathered pathway.

- **The vast majority of corn starch ethanol already qualifies for the only RFS fuel category for which it is eligible.** The definition of advanced biofuel at CAA 211(o)(1)(B)(i) excludes “ethanol derived from corn starch.” As described above, a large volume of ethanol is exempt from the GHG requirements to qualify as renewable fuel. Many producers who are expanding beyond their grandfathered baseline capacity have been approved under our expedited Efficient Producer Petition Process.²

While we appreciate the point raised in your letter that other countries may use EPA’s analysis to justify tariffs or limit exports from the U.S., it is important to note that the 2010 LCA was designed to meet the requirements specified in the CAA. The CAA definition of lifecycle greenhouse gas emissions includes “significant indirect emissions such as significant emissions from land use changes.” The scenarios considered for the 2010 LCA were specifically designed to evaluate corn starch ethanol used under the RFS program, and may not apply to other situations or policies. Other countries or jurisdictions reviewing EPA’s 2010 LCA as part of their policy formation should do so carefully and appreciate its original purpose and scope. Your letter encourages EPA to adopt either “DOE/Argonne’s latest published results or USDA’s recently reported data.” Both of these studies rely on the GTAP-BIO model to estimate indirect land use change (ILUC) GHG emissions associated with corn ethanol. For many of the reasons described in the March 2010 rulemaking, we continue to believe there are important limitations of the GTAP-BIO model that make it ill-suited for conducting the type of lifecycle analysis required under the CAA. We also note that the USDA report and the DOE/Argonne analyses used a different methodology than EPA’s 2010 LCA, and it is not clear whether those studies satisfy the definition of lifecycle GHG emissions required by the CAA.

EPA continues to monitor the science regarding lifecycle GHG emissions associated with biofuels. Overall, new research since the 2010 LCA has improved our understanding of biofuel lifecycle GHG emissions, but given the inherent uncertainty associated with modeling of indirect emissions, the overall conclusions we can draw from this body of modelling have not changed. As we do lifecycle assessments for new fuel pathways, the most recent science and data are incorporated where possible. For example, EPA has updated the analysis to reflect new data on forest carbon stocks, projected yields, and agricultural inputs as appropriate. Our analyses have also incorporated advances in process technology efficiencies as biofuel facilities demonstrate improvements in their GHG emissions.

Your letter states that EPA’s forthcoming Triennial Report to Congress “offers a new opportunity” to update our LCA of corn ethanol. The Agency is currently working to complete, in the spring of 2018, the report to Congress required under Section 204 of the Energy Independence and Security Act of 2007 (EISA). It is too early to comment on the contents of the forthcoming report.

² For more information on the Efficient Producer Petition Process, see: <https://www.epa.gov/renewable-fuel-standard-program/how-prepare-efficient-producer-petition-under-renewable-fuel>

Thank you for your continued interest in RFS program. Please do not hesitate to contact me if you have any questions regarding this matter.

Sincerely,

A handwritten signature in black ink, appearing to read 'K. Simon', with a stylized flourish extending to the right.

Karl Simon, Director
Transportation and Climate Division

Message

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 3/9/2018 6:43:24 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: MOVES Model: Thank you and follow-up

Mandy,

I'm grateful to report that Steve Vander Griend of Urban Air Initiative was finally allowed to make a presentation about flaws in the MOVES2014 vehicular emissions model at the MOVES Review Work Group. Thank you for intervening in this matter.

Do you have 15 minutes to discuss next steps? I understand that OTAQ's draft response to our related Request for Correction of Information under the Information Quality Act has been forwarded to another office at EPA—maybe ORD. The agency's response is critically important to air quality because it will affect whether and how OTAQ solves these problems in the forthcoming new version of the MOVES model, and thus the effectiveness of State Implementation Plans.

Adam

Adam R.F. Gustafson
Partner | **BOYDEN GRAY & ASSOCIATES**
801 17th Street NW, Suite 350
Washington, DC 20006
Cell: Ex. 6
Fax: 202-955-0621
gustafson@boydengrayassociates.com

Message

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 10/5/2018 9:02:22 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]
Subject: Re: Draft press release re: RVP relief
Attachments: 10-9-18 draft RVP statement ICGA STATEMENT ON RVP WAIVER FOR ETHANOL BLENDS ABOVE E10[4].docx

Here is the attachment.

From: Adam Gustafson <gustafson@boydengrayassociates.com>
Date: Friday, October 5, 2018 at 10:57 PM
To: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>, "Schwab, Justin" <Schwab.Justin@epa.gov>
Subject: Draft press release re: RVP relief

Dear Mandy and Justin,

This is a draft of the press release that the Illinois Corn Growers Association plans to issue when President Trump makes his RVP announcement in Iowa October 9. Illinois Corn wants those working on this announcement to understand that corn growers fully support the President's proposal to reinterpret the RVP waiver statute to apply the same standard to E10 and fuel blends with more than 10% ethanol.

I'm out of the country, but I would be happy to answer any questions by email.

Adam

Adam R.F. Gustafson
Partner | **BOYDEN GRAY & ASSOCIATES**
801 17th Street NW, Suite 350
Washington, DC 20006
Cell: Ex. 6
Fax: 202-955-0621
gustafson@boydengrayassociates.com



Illinois Corn Growers Association

www.ilcorn.org

PO Box 1623 Bloomington, IL 61705-1623

PH: 309-557-3257

ilcorn@ilcorn.org

<draft>

October 9, 2018

Contact: Tricia Braid

(309) 830-3393

ICGA STATEMENT ON RVP WAIVER FOR ETHANOL BLENDS ABOVE E10

BLOOMINGTON, Ill.—Illinois Corn Growers Association President Aron Carlson, a farmer from Winnebago, Ill., issued the following statement after President Donald Trump announced in Council Bluffs today his decision to direct EPA to issue a Reid Vapor Pressure (RVP) waiver for gasoline with ethanol blends above E10:

“We are pleased that President Trump has unequivocally delivered on his promise to provide increased ethanol market access by granting the RVP waiver for ethanol blends above E10, such as E15. We hope that with a quick turnaround by EPA to finalize the rule, we can expect 2019 to be the first year that higher blends like E15 can be available at the pump year-round. This is the type of good news that corn farmers have been waiting for as we’re bringing in the corn harvest and watching prices hover below cost of production levels.

“Corn farmers have been losing money for the last five years. Building markets for higher blends of corn-based ethanol supports farm income at zero cost to the federal budget. The president’s actions to remove this unfair regulatory burden will also benefit consumers when they choose E15 because prices will be a few cents less.”

###

About the Illinois Corn Growers Association

Illinois Corn Growers Association is a state based organization that represents the interests of corn farmers in Illinois, maintaining a high profile on issues in Washington, DC, and Springfield, IL. They aim to create and maintain opportunities for Illinois corn farmers to capture more value for their product. In order to fulfill this mission, the organization conducts governmental affairs activities at all levels, market development projects, and educational and member service programs. For further information regarding their work and involvement, visit their website www.ilcorn.org.

Message

From: Andrew Varcoe [avarcoe@boydengrayassociates.com]
Sent: 5/31/2017 2:44:43 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: RE: RVP

No need to apologize; you were right – Adam G was the sender (and the author of the memo). I was impressed by the late night emailing, which I am guilty of from time to time.

Andy

From: Gunasekara, Mandy [mailto:Gunasekara.Mandy@epa.gov]
Sent: Wednesday, May 31, 2017 10:43 AM
To: Andrew Varcoe <avarcoe@boydengrayassociates.com>
Subject: RE: RVP

Sorry, sorry ,sorry – I meant Andrew! That's what I get for late night emailing.

From: Andrew Varcoe [mailto:avarcoe@boydengrayassociates.com]
Sent: Wednesday, May 31, 2017 10:38 AM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: RE: RVP

Thank you!

Andrew R. Varcoe
Partner
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Washington, DC 20006
202.706.5488 (o), **Ex. 6** (m), 202.955.0621 (f)
avarcoe@boydengrayassociates.com

From: Gunasekara, Mandy [mailto:Gunasekara.Mandy@epa.gov]
Sent: Tuesday, May 30, 2017 11:24 PM
To: Adam Gustafson <gustafson@boydengrayassociates.com>
Cc: Andrew Varcoe <avarcoe@boydengrayassociates.com>; James Conde <conde@boydengrayassociates.com>
Subject: Re: RVP

Thank you, Adam. I appreciate the time you've put into this. I just forwarded it to the rest of our team and asked the program and OGC folks to use it to develop options/response.

I'll be in touch to discuss further.

Best,

Mandy

Sent from my iPhone

On May 30, 2017, at 11:11 PM, Adam Gustafson <gustafson@boydengrayassociates.com> wrote:

Mandy,

Thank you for the opportunity to meet with you and your colleagues last week to discuss EPA's legal authority to extend the 1 psi RVP waiver to E15. Here is our promised memo explaining why the various solutions we discussed are tools in EPA's regulatory toolbox.

We would welcome another conversation whenever that would be useful.

Adam

Adam R.F. Gustafson
Partner | **BOYDEN GRAY & ASSOCIATES**
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<RVP Waiver Memo 20170530e.pdf>

BOYDEN GRAY & ASSOCIATES PLLC
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(202) 955-0620

May 30, 2017

To: Mandy Gunasekara, Senior Policy Adviser, Environmental Protection Agency
From: Adam Gustafson
Re: EPA Has Authority to Extend the 1 psi RVP Waiver to Midlevel Ethanol Blends

Most drivers have no access to E15—a cleaner, more cost-effective, and higher octane fuel than the E10 that prevails in the market today—even though E15 has been a legal fuel for several years. In 2011, EPA approved E15 for use in Model Year 2001 and newer vehicles under a waiver pursuant to the “sub-sim” law, section 211(f)(4) of the Clean Air Act.¹ EPA aimed to remove unwarranted regulatory barriers to using biofuels. But that commendable purpose has been frustrated: E15 has failed to achieve widespread market acceptance, because EPA misinterprets the 1 psi RVP waiver statute, section 211(h)(4), to apply only to gasoline with between 9 and 10 percent ethanol, arbitrarily limiting the times of year in which E15 may be used.

EPA can correct this discriminatory and counterproductive regulation of E15 by giving section 211(h)(4) its most logical interpretation and extending the 1 psi RVP waiver to all fuels containing 10 percent ethanol, including E15.

This interpretation of the statute would give effect to Congress’s intent and avoid the economically and environmentally detrimental results of EPA’s current interpretation. It would also carry out the President’s Executive Orders on regulatory costs and outdated rules;² energy independence and clean air;³ and American agriculture and renewable fuels.⁴

I. EPA’s Interpretation of the 1 psi RVP Waiver Unreasonably Excludes Blends Over E10.

To control fuel volatility, the 1990 Clean Air Act Amendments prohibited the sale of gasoline with Reid Vapor Pressure in excess of 9 pounds per square inch (psi).⁵ Recognizing

¹ *Partial Grant of Clean Air Act Waiver Application Submitted by Growth Energy to Increase the Allowable Ethanol Content of Gasoline to 15 Percent*, 76 Fed. Reg. 4662 (Jan. 26, 2011) (hereinafter E15 Partial Waiver). As discussed below, we believe that the sub-sim law no longer poses any barrier to the use of E15 and higher-level ethanol blends in conventional gasoline vehicles.

² Executive Order 13,771, 82 Fed. Reg. 9339 (Feb. 3, 2017); Executive Order 13,777, § 3(d)(v), 72 Fed. Reg. 12,285 (Mar. 1, 2017).

³ Executive Order 13,783, 82 Fed. Reg. 16,093 (Mar. 28, 2017).

⁴ Executive Order 13,790, 82 Fed. Reg. 20237 (Apr. 28, 2017).

⁵ Clean Air Act Amendments of 1990, § 216, 104 Stat. 2399, 2489 (Nov. 14, 1990), *codified as amended at* 42 U.S.C. § 7545(h)(1) (emphasis added). Reid Vapor Pressure, or RVP, “is a standard measure of fuel volatility

that this standard would impose a substantial burden on gasoline blended with ethanol, Congress simultaneously allowed a 1 psi waiver “[f]or fuel blends containing gasoline and 10 percent denatured anhydrous ethanol.”⁶ This ratified EPA’s preexisting regulatory allowance of a 1 psi RVP waiver for gasoline containing “at least 9% ethanol.”⁷ EPA’s rule placed no upper limit on the ethanol content of fuel eligible for the 1 psi waiver, but required only that the ethanol content “not exceed any applicable waiver conditions” under the sub-sim law.⁸

In 1991, EPA amended this rule, restricting the 1 psi waiver to gasoline with an ethanol content of “at least 9% and *no more than 10%* (by volume) of the gasoline.”⁹ At the time, replacing the reference to “any applicable waiver conditions” with a “no more than 10%” requirement had no immediate practical effect: Ethanol was not present in the certification fuel and was only allowed in the market at a maximum concentration of 10 percent, by virtue of a sub-sim-waiver pursuant to section 211(f)(4).¹⁰ Those circumstances have changed with EPA’s approval of the E15 sub-sim waiver in 2011 and the introduction of ethanol into the gasoline certification fuel in 2017. But EPA’s interpretation of section 211(h)(4) is stuck in 1991.

II. EPA Should Reinterpret the 1 psi RVP Waiver Statute to Cover All Fuel Containing 10 Percent Ethanol, Including E15.

A. The 1 psi RVP Waiver Statute Is Not Limited to E10.

During the previous Administration, EPA maintained that the 1 psi waiver statute excludes blends with more than 10 percent ethanol, insisting that “a 1 psi RVP waiver was granted by Congress in 1990 to gasoline-ethanol blends of a least 9 volume percent *and no greater than 10* volume percent ethanol.”¹¹ But Congress did not limit the waiver to E10.

at 100°F.” *Renewables Enhancement and Growth Support Rule*, Proposed Rule, 81 Fed. Reg. 80828, 80851 (Nov. 16, 2016) (hereinafter Proposed REGS Rule). “Volatility is a measure of the propensity of a liquid to evaporate.” *Id.*

⁶ Clean Air Act Amendments of 1990, § 216, 104 Stat. 2399, 2490 (Nov. 14, 1990), *codified at* 42 U.S.C. § 7545(h)(4).

⁷ *Volatility Regulations for Gasoline and Alcohol Blends Sold in Calendar Years 1989 and Beyond*, 54 Fed. Reg. 11868, 11884 (Mar. 22, 1989) (hereinafter Phase I Volatility Rule).

⁸ *Id.* Thus, EPA’s regulation provided that higher ethanol blends would qualify for a 1 psi RVP waiver whenever they were substantially similar to a certification fuel or were granted a waiver under the sub-sim law.

⁹ *Regulation of Fuels and Fuel Additives: Standards for Gasoline Volatility; and Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines: Standards for Particulate Emissions From Urban Buses*, 56 Fed. Reg. 64704, 64710 (Dec. 12, 1991), *codified at* 40 C.F.R. § 80.27(d)(2) (emphasis added).

¹⁰ *See Regulation of Fuels and Fuel Additives: Standards for Gasoline Volatility; and Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines: Standards for Particulate Emissions From Urban Buses*, Proposed Rule, 56 Fed. Reg. 24242, 24245 (May 29, 1991) (“Compliance with the conditions of a fuel waiver under section 211(f)(4) of the CAA requires that the ethanol portion of the gasoline blend cannot lawfully be any greater than 10 percent (by volume).”).

¹¹ Proposed REGS Rule, 81 Fed. Reg. at 80851 n.95 (emphasis added). For a detailed explanation of EPA’s interpretation, see *Regulation to Mitigate the Misfueling of Vehicles and Engines With Gasoline Containing Greater*

Congress granted a 1 psi RVP waiver to “fuel blends containing gasoline and 10 percent denatured anhydrous ethanol.”¹² And E15 fuel blends contain gasoline and 10 percent denatured anhydrous ethanol.

The text of section 211(h)(4) contradicts EPA’s interpretation.¹³ When Congress adopted the 1 psi waiver statute, it included a special affirmative defense for downstream fuel sellers and carriers who can show that, among other things, “the ethanol portion of the fuel blend does not exceed its waiver condition under” section 211(f)(4).¹⁴ E15 blends comply with this requirement: the “ethanol portion” of an E15 blend “does not exceed” the 15 percent ethanol concentration allowed by the sub-sim waiver that EPA granted under section 211(f)(4). This safe harbor confirms Congress’s intent to extend the 1 psi RVP waiver to blends containing more than 10 percent ethanol, as long as they are consistent with the sub-sim law.¹⁵ Congress could have limited the affirmative defense to fuel blends with *no more than* 10 percent ethanol; instead, Congress tied it to compliance with section 211(f), which empowers EPA to approve higher levels of ethanol.

Any notion that Congress intended to limit the 1 psi RVP waiver to E10 was refuted in 2005. In that year, Congress added section 211(h)(5), allowing States to exempt themselves from the 1 psi waiver’s application to “*all* fuel blends containing gasoline and 10 percent denatured anhydrous ethanol.”¹⁶ If the 1 psi waiver applied only to E10 and excluded higher ethanol blends, Congress’s use of the word “all” would have been superfluous.¹⁷

Than Ten Volume Percent Ethanol and Modifications to the Reformulated and Conventional Gasoline Programs, 76 Fed. Reg. 44406, 44433–35 (July 25, 2011) (hereinafter *Misfueling Rule*).

¹² 42 U.S.C. § 7545(h)(4).

¹³ *Id.*

¹⁴ *Id.* (second sentence).

¹⁵ In the *Misfueling Rule*, EPA asserted that the reference to section 211(f)(4) in the deemed to comply provision somehow implies that Congress limited the 1 psi RVP waiver to no more than 10 percent ethanol. 76 Fed. Reg. at 44434. That is illogical. If Congress wanted to limit the 1 psi waiver to E10, it would have specified fuels containing *no more than* 10 percent ethanol, instead of cross-referencing section 211(f)(4), which allowed EPA to approve higher levels of ethanol.

¹⁶ Energy Policy Act of 2005, Pub. L. 109-58, § 1501(c), 119 Stat. 594, 1074–75 (2005), *codified at* 42 U.S.C. § 7545(h)(5).

¹⁷ In the *Misfueling Rule*, EPA said this State exemption provision (section 211(h)(5)) would provide States with no relief from the 1 psi waiver (section 211(h)(4)) if section 211(h)(4) were interpreted to include blends of more than 10 percent ethanol. 76 Fed. Reg. at 44434–35. This argument is circular. Both provisions use the same phrase (“fuel blends containing gasoline and 10 percent denatured anhydrous ethanol”), so the exemption in section 211(h)(5) covers the same class of fuels as the waiver in section 211(h)(4).

B. EPA's Interpretation of the 1 psi RVP Waiver Statute Violates Congress's Intent.

EPA's needlessly restrictive interpretation of the 1 psi RVP waiver provision is "unmoored from the purposes and concerns" of the Clean Air Act.¹⁸ The purpose of section 211(h) is to control the volatility of commercial gasoline.¹⁹ But EPA's interpretation ensures that only the most volatile gasoline-ethanol blends are sold. As shown in Figure 1 and acknowledged by EPA, "the addition of ethanol to gasoline" above 10 percent ethanol "decreases blend volatility."²⁰ In addition, as

EPA has recognized, higher ethanol blends lower the reactivity (*i.e.*, the tendency to form ozone) of the resulting emissions.²¹ By restricting the 1 psi waiver to gasoline with no more than 10 percent ethanol, EPA's interpretation discourages the sale of a less volatile fuel with less reactive emissions, undermining the objectives of the RVP control program and increasing ozone pollution.

EPA's interpretation also violates all of Congress's purposes in providing a 1 psi waiver for ethanol blends. Congress granted that waiver to achieve the "beneficial environmental, economic, agricultural, energy security and foreign policy implications" of ethanol blending.²² Congress determined that a small increase in evaporative emissions was justified by ethanol's countervailing reduction of tailpipe emission: "ethanol burns cleaner than pure hydrocarbon

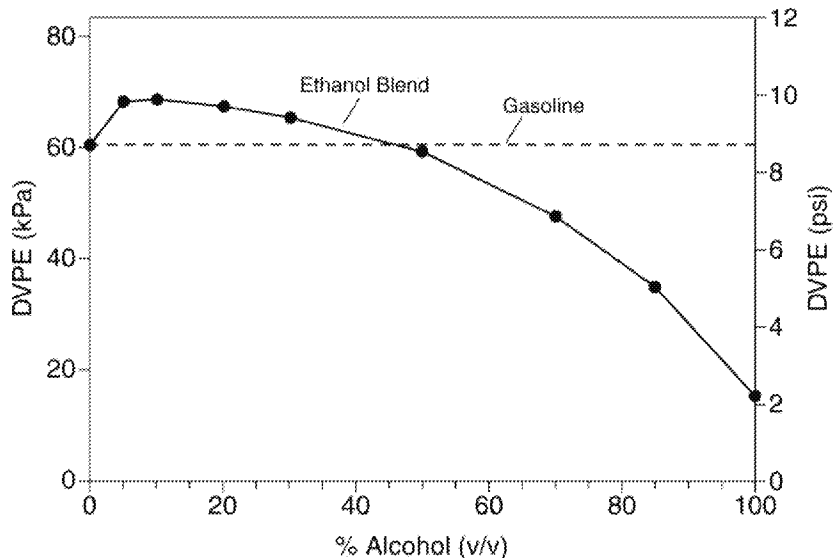


Figure 1. Source: Memorandum from Robert L. McCormick, National Renewable Energy Laboratory, to Kristy Moore, Renewable Fuels Association (Mar. 26, 2012), <http://bit.ly/2oGf3QH>.

¹⁸ *Judulang v. Holder*, 565 U.S. 42, 64 (2011).

¹⁹ Congress enacted the volatility program to reduce "commercial gasoline volatility." S. Rep. No. 101-228, at 109 (1989).

²⁰ Proposed REGS Rule, 81 Fed. Reg. at 80851.

²¹ See EPA, Report to Congress on Public Health, Air Quality, and Water Resource Impact of Fuel Additive Substitutes for MTBE 63 (Feb. 2009) ("With additional ethanol use, the ethanol content of VOC should increase. Ethanol is less reactive than the average VOC. Therefore, this change should . . . reduce ambient ozone levels.").

²² S. Rep. No. 101-228, at 110 (1989).

gasoline and thus cause[s] fewer tailpipe emissions.”²³ Congress recognized that these benefits of ethanol blending could not be achieved without a waiver because of the high “cost of producing and distributing” a “sub-nine pound RVP gasoline” blendstock.²⁴ Instead of fulfilling Congress’s intent, EPA’s restrictive interpretation limits the beneficial implications of ethanol blending. It irrationally requires E15 blenders to purchase costly sub-9 psi RVP blendstocks that refiners are unwilling to sell, and it thereby increases tailpipe pollution and dependence on foreign petroleum.

C. EPA’s Interpretation of the 1 psi RVP Waiver Statute Irrationally Harms Small Businesses, American Agriculture, and Drivers.

EPA’s interpretation has serious deleterious consequences for American farmers, fuel producers, fuel retailers, and drivers who would benefit from competition among a range of fuels options. Every summer (the period of greatest gasoline demand) nearly a thousand retailers must stop selling E15 because EPA applies a more stringent RVP standard to E15 than it does to E10.²⁵ Small business owners have testified before EPA about the real-world burdens imposed by EPA’s interpretation. As the owner of a convenience store in Nevada, Iowa, recently explained:

The only problem I have with the E15 comes every June 1st. On that day, I need to restrict the sales of E15 to flex fuel vehicles only. And on that day, I begin trying to explain to my customers the complex regulations that make the fuel that they buy one day off limits the next day. They are frustrated and I am frustrated. And let me tell you, when summer driving season starts, my E15 sales drop like a rock.²⁶

Because EPA’s current interpretation of the 1 psi RVP waiver provision is not required by statute, deprives the public of a potential environmental benefit, and harms small business and American agriculture, EPA should revoke that interpretation and affirm that the statutory waiver extends to all gasoline containing 10 percent ethanol, including higher ethanol blends.

III. The Sub-sim Law Does Not Prevent Extending the 1 psi Waiver to Higher Ethanol Blends.

The sub-sim law, section 211(f) of the Clean Air Act, makes it unlawful “to first introduce into commerce, or to increase the concentration in use of, any fuel or fuel additive

²³ *Id.*

²⁴ *Id.*

²⁵ EPA, Transcript of Public Hearing, Renewables Enhancement and Growth Support Rule at 25:7–9 (Dec. 6, 2016).

²⁶ *Id.* at 28:15–22, 29:16.

for use by any person in motor vehicles . . . which is not substantially similar to any fuel or fuel additive utilized” in the certification of new motor vehicles.²⁷

For three independent reasons, described below, this law poses no barrier to the extension of the 1 psi RVP waiver to midlevel ethanol blends:

- First, the sub-sim law no longer provides any basis for EPA’s control of ethanol content in market fuel, because ethanol is now a fuel additive utilized in certification.
- Second, even if the sub-sim law could somehow be interpreted to limit ethanol content, the Agency should redefine “substantially similar” for gasoline to include midlevel ethanol blends in light of the E10 gasoline certification fuel.
- Finally, and again in the alternative, EPA could approve a new sub-sim waiver under section 211(f)(4), applying to E15 and other midlevel ethanol blends the same RVP standard that governs E10 in the market.

A. The Sub-sim Law No Longer Limits Ethanol Concentration.

The sub-sim law prohibits introducing into the market for the first time a new fuel or fuel additive that is “not substantially similar to any fuel or fuel additive utilized in . . . certification,”²⁸ absent a waiver pursuant to section 211(f)(4). The sub-sim statute also makes it unlawful to “increase the concentration in use” of certain fuel additives—but, again, only those that are “not substantially similar to any . . . fuel additive utilized in . . . certification.”²⁹ For example, the sub-sim law limits the concentration of fuel additives that had already been “introduce[d] into commerce” at the time of the passage of section 211(f) and yet are not present in certification fuel. The law also makes it unlawful to exceed the “specified concentration” of new fuel additives for which EPA has granted a sub-sim waiver under section 211(f)(4).³⁰

Thus, until 2017 it was a violation of section 211(f)(1) to “increase the concentration in use” of ethanol beyond 15 percent: Ethanol was not substantially similar to a certification fuel additive, because the gasoline certification fuel contained no ethanol, and EPA’s sub-sim waiver for E15 was limited to that “specified concentration” of ethanol.

²⁷ 42 U.S.C. § 7545(f)(1)(B).

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.* § 7545(f)(4).

Beginning this year (2017), however, the gasoline certification fuel now contains 10 percent ethanol.³¹ Because ethanol is a “fuel additive utilized in . . . certification,”³² the sub-sim law no longer limits ethanol blending in market fuel. Whatever range of interpretations it may allow, the term “substantially similar” cannot reasonably be interpreted to *exclude* fuel additives that are *identical* to those used in certification.

Now that ethanol is a fuel additive used in certification, it is no longer a new fuel additive subject to section 211(f). EPA can control the use of ethanol in market fuel only under its separate statutory authority under section 211(c) of the Clean Air Act. Under section 211(c), EPA may control a fuel additive if it determines that some concentration of that additive “causes, or contributes to, air pollution which may reasonably be anticipated to endanger the public health or welfare” or (2) causes “emissions products” that “impair to a significant degree the performance of any emission control device or system which is [or would soon be] in general use.”³³

The D.C. Circuit has rejected EPA’s prior attempt to circumvent section 211(c)’s “very definite scheme” through regulation under section 211(f). In *Ethyl Corp. v. EPA*, the Court rejected EPA’s attempt to deny a sub-sim waiver for a fuel additive under 211(f)(4) because of “concern about the effects on public health that could result if EPA were to” grant such a waiver.³⁴ In rejecting EPA’s claim that it could use section 211(f) to regulate fuels “in the public interest,” the Court observed that the detailed scheme of regulation established by section 211(c) demonstrated that “Congress did not delegate to the Agency the authority to consider other factors ‘in the public interest’ such as public health when acting under section 211(f)(4).”³⁵

³¹ *Control of Air Pollution From Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards*, 79 Fed. Reg. 23414, 23810 (Apr. 28, 2014), *codified at* 40 C.F.R. § 1065.710(b)(2).

³² EPA’s interpretative rules under the sub-sim law recognize that “aliphatic alcohols,” including ethanol, are gasoline “fuel additives.” See *Fuels and Fuel Additives; Definition of Substantially Similar*, 45 Fed. Reg. 67443, 67447 (Oct. 10, 1980) (hereinafter 1980 Definition of Substantially Similar). This treatment is consistent with EPA’s definition of the term “additive” under section 211: “Additive means any substance, other than one composed solely of carbon and/or hydrogen, that is intentionally added to a fuel named in the designation (including any added to a motor vehicle’s fuel system) and that is not intentionally removed prior to sale or use.” 40 C.F.R. § 79.2(e). It is also consistent with the Agency’s actual practice: ethanol is registered as an unleaded gasoline additive. See EPA, List of Registered Gasoline Additives, <https://www3.epa.gov/otaq/fuels1/fars/web-gas.htm>. Although EPA’s past definitions of substantially similar limited the concentration of some fuel additives to 0.25 percent by weight, aliphatic alcohols have never been subject to that cap. They have instead been subject to an oxygen cap. *Regulation of Fuels and Fuel Additives; Definition of Substantially Similar*, 56 Fed. Reg. 5352, 5355–56 (Feb. 11, 1991) (interpretive rule limiting the oxygen content of gasoline to 2.7 percent by weight, equivalent to significantly less than 10 percent ethanol) (hereinafter 1991 Definition of Substantially Similar).

³³ 42 U.S.C. § 7545(c)(1).

³⁴ 51 F.3d 1053, 1057 (D.C. Cir. 1995).

³⁵ *Id.* at 1061; see also *American Methyl Corp. v. EPA*, 749 F.2d 826, 836 (D.C. Cir. 1984) (rejecting EPA’s attempt to revoke a 211(f)(4) waiver as inconsistent with the design of the statute because “section 211(f) forbids the ‘first’ introduction of new fuels and new fuel additives” while “section 211(c) provides for regulation of fuels

The current sub-sim waiver for E15 is now out of sync with Congress’s regulatory scheme: no waiver is necessary now that ethanol is a fuel additive used in certification. The E15 waiver is not just superfluous—it imposes a stringent RVP standard on E15 because it erroneously denies that fuel the benefit of the 1 psi RVP waiver. Recognizing that ethanol is now utilized in certification and thus no longer controlled by section 211(f) is the simplest way to solve the dilemma created by the existing sub-sim waiver for E15. In the preamble to a rule re-interpreting section 211(h)’s 1 psi RVP waiver to apply to higher ethanol blends, EPA could simply explain the changed factual circumstances that obviate any further ethanol sub-sim waivers under section 211(f).

B. In the Alternative, EPA Should Redefine “Substantially Similar” To Include E15.

Our next point is an argument in the alternative: Even if the sub-sim law could be interpreted to limit ethanol content (and for the reasons discussed above, it cannot), EPA should nevertheless update its “substantially similar” definition, in light of the new E10 certification fuel, to include some range of ethanol content up to or exceeding E15.³⁶ EPA’s current definition of “substantially similar” for gasoline was last amended in a 2008 interpretive rule that is clearly outdated: it contains a 2.7 percent limit on oxygen content that is inconsistent with the new E10 gasoline certification fuel.³⁷ This restriction is obsolete and must be revised: at the very least, “substantially similar” must now include E10 and blends similar to E10.

There is a strong factual case for concluding that E15 and higher ethanol blends are substantially similar to E10. First, the chemical and physical properties of E15 and higher ethanol blends are similar to those of the new E10 certification fuel in every sense relevant to emissions controls. When EPA last interpreted “substantially similar” for gasoline, EPA required that the finished fuel possess “the physical and chemical specifications” of ASTM’s then-current standard for gasoline.³⁸ E15’s physical and chemical characteristics fully comply with the updated ASTM Standard—ASTM D4814-16e.³⁹

already in commerce”). EPA has also recognized that if it wants to control fuel and fuel additive emissions, it must do so under 211(c), and not under the guise of interpreting the term “substantially similar” in 211(f)(1). *See* 1980 Definition of Substantially Similar, 45 Fed. Reg. at 67445.

³⁶ EPA previously proposed defining “substantially similar” for gasoline to include blends of up to 12 percent ethanol. EPA did so at a time when there was no ethanol in the standard gasoline certification fuel. *Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program*, 74 Fed. Reg. 24904, 25018–19 (May 26, 2009). The justification for treating such fuel as “substantially similar” is much stronger now that there is 10 percent ethanol in the certification fuel.

³⁷ 1991 Definition of Substantially Similar, 56 Fed. Reg. 5352. E10 substantially exceeds 2.7 percent oxygen.

³⁸ *Id.* at 5354–55.

³⁹ ASTM, Standard Specification for Automotive Spark-Ignition Engine Fuel, D4814 – 16e, Table 1 (2016); *see generally* API, Determination of the Potential Property Ranges of Mid-Level Ethanol Blends, Final Report, at 1 (Apr. 23, 2010) (“[B]lending ethanol into gasoline at concentrations between 10% and 30% by

Second, when EPA capped the oxygen content of gasoline containing ethanol in the 1980s and early 90s, it did so in order to limit the possible “enleanment” of the air-fuel mixture “which could lead to NO_x emission increases in some cars.”⁴⁰ This rationale no longer applies. Most vehicles on the road today tightly control air-fuel ratios with advanced calibration strategies to prevent the enleanment of the fuel mixture.⁴¹ Many studies have repeatedly demonstrated that in today’s vehicles, midlevel ethanol blends up to at least E30 have no adverse effect on (and can even lower) NO_x emissions, as compared to E10.⁴²

C. In the Alternative, EPA Should Grant a New Sub-Sim Waiver for E15+ with the Same 10 psi RVP Standard that Applies to E10.

As discussed above, EPA should recognize that ethanol can no longer be controlled under section 211(f) because it is a fuel additive used in certification. Or EPA should reinterpret “substantially similar” to include E15. Failing that, EPA should grant a new sub-sim waiver for E15 or higher ethanol blends under section 211(f)(4) that gives the waived fuel the benefit of section 211(h)(4)’s 1 psi RVP waiver.

When EPA granted the current sub-sim waiver for E15, the Agency said that “the 1 psi waiver only applies to gasoline blends containing 9–10 vol% ethanol.”⁴³ EPA’s conclusion was based on a thin analysis of the legislative history. EPA found that “[t]he purpose of the 1 psi waiver provision was to facilitate the participation of ethanol in the transportation fuel industry while also limiting gasoline volatility resulting from ethanol blending.”⁴⁴ This is true as far as it goes, but EPA’s analysis neglects that fuel volatility begins to fall when the ethanol

volume should pose no additional challenge to meeting the volatility requirements in the current ASTM . . . specifications,” with one exception that *no* longer applies under ASTM 4814-16e).

⁴⁰ 1991 Definition of Substantially Similar, 56 Fed. Reg. at 5354. “Enleanment refers to increasing the amount of oxygen in the mixture of air and fuel that enters the engine for combustion.” E15 Waiver, 76 Fed. Reg. at 4669 n.19.

⁴¹ See Georgios Karavalakis, *Impacts of Ethanol Fuel Level on Emissions of Regulated and Unregulated Pollutants from a Fleet of Gasoline Light-Duty Vehicles*, 93 Fuel 549, 551–52 (2012) (finding that “[o]lder technology vehicles” made before 1996 lacked “sophisticated controls of air-fuel ratios at” the levels required to prevent enleanment with E10, E20, and higher ethanol levels, but showing no statistically significant difference in NO_x emissions for model year 1996 and later vehicles).

⁴² See, e.g., Carolyn Hubbard et al., *Ethanol and Air Quality: Influence of Fuel Ethanol Content on Emissions and Fuel Economy of Flexible Fuel Vehicles*, 48 Environ. Sci. & Tech. 861, 863 (2014) (finding lower NO_x emissions for E20, E30 and E40 relative to E10); Georgios Karavalakis et al., *Regulated Emissions, Air Toxics, and Particle Emissions from SI-DI Light-Duty Vehicles Operating on Different Iso-Butanol and Ethanol Blends*, SAE Tech. Paper 2014-01-1451, at 6 (finding no statistically significant difference for NO_x emissions between E10, E15, and E20); John M. Storey et al., *Ethanol Blend Effects On Direct Injection Spark-Ignition Gasoline Vehicle Particulate Matter Emissions*, 3 SAE Int. J. Fuels Lubr. 650, 653 (2010) (finding lower NO_x emissions for E20 relative E10); Knoll et al., *Effects of Mid-Level Ethanol Blends on Conventional Vehicle Emissions*, SAE Tech. Paper 2009-01-2723, at 1 (“Vehicles found to apply long-term fuel trim (LTFT) to power-enrichment fueling showed no statistically significant fuel effect on . . . NO_x” when using E15 and E20 instead of E10).

⁴³ Misfueling Rule, 76 Fed. Reg. at 44434.

⁴⁴ *Id.*

concentration exceeds 10 percent. Congress’s purposes would be served by applying the 1 psi waiver to “*all* fuel blends containing gasoline and 10 percent denatured anhydrous ethanol,” including E15.⁴⁵

1. The Sub-Sim Waiver Provision Is Not Inconsistent with a 10 psi RVP Standard.

Before EPA can grant a sub-sim waiver under section 211(f)(4), it must determine that the relevant fuel “will not cause or contribute to a failure of any emission control device or system (over the useful life of the motor vehicle . . .) to achieve compliance by the vehicle or engine with the emission standards with respect to which it has been certified.”⁴⁶ This provision is concerned with emissions “over the useful life” of the vehicle, not in certification testing.⁴⁷ The relevant comparator is therefore the fuel that the vehicle would use over its useful life in the real world—namely 10 psi E10, not a hypothetical 9 psi fuel.

E15 produced by adding more ethanol to E10 has lower volatility than the E10, so extending the 1 psi waiver to E15 would *mitigate* any emissions control failures resulting from 10 psi E10; it would not “cause or contribute” to such failures. As EPA itself has admitted, evaporative emission “results for E15” are “comparable to those for E10 and E20 having the same RVP.”⁴⁸

The reasoning that led EPA to use 9 psi fuel as the comparator in 2011 no longer holds: When EPA first declined to apply the 1 psi RVP waiver to E15, the agency speculated that “RVP related complications could be avoided by refiners producing a lower RVP blendstock for E10 as well,” so that 9 psi E15 could be produced from the same blendstock as E10, effectively nullifying the statutory 1 psi waiver.⁴⁹ The past 7 years have demonstrated that the market will not support such a change. EPA itself recently confirmed that “it has not been economical for lower RVP gasoline blendstocks to also be made available that would be

⁴⁵ 42 U.S.C. § 7545(h)(5)(A).

⁴⁶ *Id.* § 7545(f)(4).

⁴⁷ *Id.* The useful life of a vehicle was defined by Congress in section 202(d) of the Act. *See id.* § 7521(d).

⁴⁸ E15 Waiver, 76 Fed. Reg. at 4678.

⁴⁹ *Regulation To Mitigate the Misfueling of Vehicles and Engines With Gasoline Containing Greater Than Ten Volume Percent Ethanol and Modifications to the Reformulated and Conventional Gasoline Programs*, 75 Fed. Reg. 68044, 68061 (Nov. 4, 2010). This rationale contradicts the central purpose of the 1 psi RVP waiver for ethanol, which was created precisely to allow ethanol to be “splash blended” into regular gasoline blendstock, avoiding the need to create costly low-RVP blendstocks for ethanol blending. *See* S. Rep. No. 101-228, at 110 (1989); Phase I Volatility Rule, 54 Fed. Reg. at 11871, 11873–74.

suitable to make E15.”⁵⁰ Thus, during the RVP season, E15 is effectively banned from use in non-FFVs, arbitrarily depriving drivers of a cleaner fuel.⁵¹

2. Auto Manufacturers Are Not at Risk of Exceeding Evaporative Emissions Standards.

Even if the sub-sim waiver provision required EPA to compare E15 to the 9 psi gasoline certification fuel instead of real-world E10 (and it does not), there is no reason to think that E15 would cause or contribute to evaporative emissions exceedances.⁵² EPA’s compliance data shows that auto manufacturers substantially over-comply with the evaporative emissions standard.⁵³ These vehicles would face no serious risk of exceeding that standard when running on E15 with the benefit of the 1 psi RVP waiver. And as Congress concluded when it enacted that provision, any minor increase in evaporative emissions is justified by ethanol’s more significant reduction of tailpipe emissions.⁵⁴

Conclusion

Under the best reading of section 211(h)(4), the 1 psi RVP waiver applies to all fuels containing 10 percent ethanol, including E15. Whether by recognizing that ethanol is now substantially similar to a certification fuel additive, or by promulgating a new interpretive rule defining “substantially similar” for gasoline, EPA could realize the economic, environmental, and national security benefits of E15 with the 1 psi waiver. Although the first approach is simplest and gives effect to the plain meaning of section 211(f)(1)(B), either would avoid any recourse to the sub-sim waiver process of section 211(f)(4). At the very least, EPA should grant a new sub-sim waiver for E15 or higher ethanol blends and extend to those fuels the benefit of the 1 psi RVP waiver. Whatever the regulatory mechanism employed, equalizing EPA’s RVP standards for E10 and E15 would answer the President’s call to eliminate costly regulatory barriers and to promote clean air, American agriculture, and energy security.

⁵⁰ Proposed REGS Rule, 81 Fed. Reg. at 80862 (“Blenders of E15 in conventional gasoline areas . . . have typically not been able to make E15 that is compliant with summertime RVP requirements due to the unavailability of sub-RVP blendstocks.”).

⁵¹ In fact, EPA has irrationally proposed to ban E15 even for use in FFVs, by prohibiting E15 retailers from marketing E15 to FFVs in the summer. *Id.* at 80863.

⁵² EPA’s determination to the contrary in 2011 was based on an unwarranted extrapolation from its CRC-77 test program, which showed that “three of five” older vehicles “experienced canister breakthrough at 10.0 psi RVP.” E15 Waiver, 76 Fed. Reg. at 4675 (citing Harold M. Haskew et al., Enhanced Evaporative Emissions Vehicles, CRC Project No. E-77-2, at 26 (2010)). EPA failed to mention that three out of these five vehicles also experienced canister breakthrough with a 9.0 psi RVP fuel. Haskew et al, *supra*.

⁵³ Since at least 2000, 83 percent or more new vehicle models over-complied with the applicable diurnal evaporative emission standard by a margin of 50 percent or more. *See, e.g.*, EPA, Model Year 2017 Certified Vehicle Test Result Report Evaporative-Only (XLS) (Apr. 2017), *available* at <https://www.epa.gov/sites/production/files/2017-03/2017actrr-evap.xls>.

⁵⁴ S. Rep. No. 101-228, at 110 (1989) (“[E]thanol burns cleaner than pure hydrocarbon gasoline and thus cause[s] fewer tailpipe emissions.”).

Message

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 5/30/2017 4:52:51 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Washington, Valerie [Washington.Valerie@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Re: Following up

Mandy,

This afternoon I'll be sending you the RVP memo I promised. Should I cc: the other attendees at last week's meeting? If so, I have email addresses for Ben Hengst, David Orlin, and Alex Dominguez, but not the others—Justin Schwab, Myron Brown, etc.

Or you could just forward it to the relevant persons.

Adam

From: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>
Date: Tuesday, May 23, 2017 at 10:44 AM
To: Adam Gustafson <gustafson@boydengrayassociates.com>
Cc: "Washington, Valerie" <Washington.Valerie@epa.gov>, "Dominguez, Alexander" <dominguez.alexander@epa.gov>
Subject: RE: Following up

Yes – that would be great. Look forward to seeing you soon.

When you get to the NORTH entrance of EPA, please call 202-564-3164 to be escorted up.

From: Adam Gustafson [mailto:gustafson@boydengrayassociates.com]
Sent: Tuesday, May 23, 2017 10:10 AM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Washington, Valerie <Washington.Valerie@epa.gov>
Subject: RE: Following up

Mandy,

I'm looking forward to our meeting today. If it's okay with you, I may bring my colleagues Andy Varcoe, whom you've met, and/or James Conde. Would that be appropriate?

Adam

Sent from my phone.

----- Original message -----

From: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>
Date: 5/17/2017 8:33 PM (GMT-05:00)
To: Adam Gustafson <gustafson@boydengrayassociates.com>
Cc: "Washington, Valerie" <Washington.Valerie@epa.gov>
Subject: Re: Following up

Yes- let's lock in Tuesday the 23rd from 2 to 3 pm.

Valerie, can you find us a room tomorrow? Also, please invite Ben Hengst, Samantha Dravis and Brittany Bolen from EPA to the meeting invite as well.

Thanks,
Mandy

Sent from my iPhone

> On May 17, 2017, at 4:49 PM, Adam Gustafson <gustafson@boydengrayassociates.com> wrote:
>
> I enjoyed talking with you last week, Mandy. Thanks for your time.
>
> Have you heard from Chris Grundler in response to your suggestion of a meeting on May 23?
>
> As I recall, the main purpose was to discuss the Agency's legal authority to reinterpret the one-pound RVP waiver statute to apply to higher ethanol blends. I'd also be happy to discuss other topics, including EPA's ongoing review of the MOVES2014 vehicular emissions model—whatever would be useful.
>
> I am also available Wednesday, Thursday, and Friday of next week if Tuesday isn't available.
>
> FYI, we filed the attached comments with the Agency's Regulatory Reform Task Force on Monday. They will look familiar to you, since they're based on the materials you've seen.
>
> Thanks again.
>
> Adam
>
> From: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>
> Date: Tuesday, May 9, 2017 at 6:33 PM
> To: Adam Gustafson <gustafson@boydengrayassociates.com>
> Subject: RE: Following up
>
> Lunch sounds awesome, but I'm confined to sandwiches in the office these days! Thank you for the flexibility and I look forward to seeing you then.
>
> From: Adam Gustafson [<mailto:gustafson@boydengrayassociates.com>]
> Sent: Tuesday, May 9, 2017 6:31 PM
> To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
> Subject: Re: Following up
>
> That is fine. And feel free to eat while we're meeting. Or we could meet over lunch if you have time to get out of the building.
>
> From: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov<<mailto:Gunasekara.Mandy@epa.gov>>>
> Date: Tuesday, May 9, 2017 at 6:29 PM
> To: Adam Gustafson <gustafson@boydengrayassociates.com<<mailto:gustafson@boydengrayassociates.com>>>
> Subject: RE: Following up
>
> Hey Adam,
> Anyway we can move the meeting up 30 minutes to start at 12:30? I have a meeting with the boss that starts at 1:30.
> Best,
> Mandy
>
> From: Gunasekara, Mandy

> Sent: Sunday, May 7, 2017 4:51 PM

> To: Adam Gustafson <gustafson@boydengrayassociates.com<<mailto:gustafson@boydengrayassociates.com>>>

> Subject: Re: Following up

>

> Come to the North entrance. Call Valerie Washington (CC'd) at 202-564-1016 when you get here and she can escort you up to my office, 3315A.

>

> Best,

> Mandy

> Sent from my iPhone

>

> On May 7, 2017, at 4:44 PM, Adam Gustafson

> <gustafson@boydengrayassociates.com<<mailto:gustafson@boydengrayassociates.com>>> wrote:

> Perfect. Where shall I meet you?

>

> Adam

>

> From: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov<<mailto:Gunasekara.Mandy@epa.gov>>>

> Date: Sunday, May 7, 2017 at 4:27 PM

> To: Adam Gustafson <gustafson@boydengrayassociates.com<<mailto:gustafson@boydengrayassociates.com>>>

> Subject: Re: Following up

>

> Hey Adam,

> Would 1 to 2 work on Wednesday?

> Best,

> Mandy

> Sent from my iPhone

>

> On May 4, 2017, at 12:03 PM, Adam Gustafson

> <gustafson@boydengrayassociates.com<<mailto:gustafson@boydengrayassociates.com>>> wrote:

> Thank you, Mandy.

>

> I am available tomorrow by phone: **Ex. 6**

>

> Next week I could meet in person Tuesday after 11am, all day Wednesday, and all day Friday.

>

> Let me know what you'd prefer. Thanks.

>

> Adam

>

> From: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov<<mailto:Gunasekara.Mandy@epa.gov>>>

> Date: Thursday, May 4, 2017 at 11:50 AM

> To: Adam Gustafson <gustafson@boydengrayassociates.com<<mailto:gustafson@boydengrayassociates.com>>>

> Subject: Re: Following up

>

> Thank you Adam. I had to fly down to Florida and my reading materials for the flight included your leave behind packet (which was one of the best leave behinds I've ever received).

>

> As you know, RVP is a hot topic, more so after yesterday. Are you available 2 to 3 tomorrow? I can figure out times next week if that doesn't work.

>

> Best,

> Mandy

> Sent from my iPhone

>

> On May 4, 2017, at 10:52 AM, Adam Gustafson

> <gustafson@boydengrayassociates.com<<mailto:gustafson@boydengrayassociates.com>>> wrote:

> Mandy,

>

> During our meeting last week with Administrator Pruitt and Boyden Gray, Mr. Pruitt suggested you and I should follow up on some of the issues we discussed:

>

> · clean-octane certification fuel,
>
> · sub-sim interpretation,
>
> · RVP one-pound waiver,
>
> · fuel economy calculation/R-factor,
>
> · lifecycle GHG analysis for ethanol/Biofuels Report to Congress, and
>
> · MOVES2014 emissions model
>
> I hesitate to reach out, because I know you're juggling a thousand different matters. But I'm eager to talk or meet when the time is right, and to send whatever additional materials would be helpful.
>
> When would you would like to follow up?
>
> Adam
>
>
> Adam R.F. Gustafson
> Partner | BOYDEN GRAY & ASSOCIATES<<http://boydengrayassociates.com/>>
> 801 17th Street NW, Suite 350
> Washington, DC 20006
> Cell: Ex. 6
> Fax: 202-955-0621
> gustafson@boydengrayassociates.com<<mailto:gustafson@boydengrayassociates.com>>
>
> <UAI Comments to EPA Reg Reform Task Force.pdf>

Message

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 5/17/2017 8:48:07 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Re: Following up
Attachments: UAI Comments to EPA Reg Reform Task Force.pdf

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When would you would like to follow up?

Adam

Adam R.F. Gustafson
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Washington, DC 20006
Cell: Ex. 6
Fax: 202-955-0621
gustafson@boydengrayassociates.com

Comments of

**Urban Air Initiative; Clean Fuels Development Coalition; 25x'25; Glacial
Lakes Energy, LLC; Siouxland Ethanol, LLC; ICM, Inc.; Nebraska
Ethanol Board; Nebraska Ethanol Industry Coalition; South Dakota
Farmers Union; North Dakota Farmers Union; Minnesota Farmers Union;
Montana Farmers Union; and Wisconsin Farmers Union**

On EPA's Request for Comment

On the Regulatory Reform Task Force's

Evaluation of Existing Regulations

Docket ID No. EPA-HQ-OA-2017-0190

82 Fed. Reg. 17793 (Apr. 13, 2017)

by C. Boyden Gray
Adam R.F. Gustafson
Andrew R. Varcoe
James R. Conde
BOYDEN GRAY & ASSOCIATES PLLC
801 17th Street NW, Suite 350
Washington, DC 20006
202-955-0620
gustafson@boydengrayassociates.com

May 15, 2017

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INTRODUCTION

Urban Air Initiative; Clean Fuels Development Coalition; 25x'25; Glacial Lakes Energy, LLC; Siouxland Ethanol, LLC; ICM, Inc.; Nebraska Ethanol Board; Nebraska Ethanol Industry Coalition; South Dakota Farmers Union; North Dakota Farmers Union; Minnesota Farmers Union; Montana Farmers Union; and Wisconsin Farmers Union submit these comments, respectfully requesting that EPA repeal and replace rules that have unreasonably capped ethanol's market potential.¹ EPA's counterproductive regulatory barriers have prevented ethanol's superior automotive and environmental values from driving its continued growth in the U.S. fuel market as a source of clean octane for today's motor vehicles and the highly efficient vehicles that increased ethanol blending would enable in the near future. As a result, EPA's regulatory barriers have inhibited job creation in the ethanol industry, imposed costs without countervailing benefits, and created serious inconsistencies in regulatory policy.² By repealing and replacing these outdated rules, EPA would carry out the President's Executive Order on regulatory reform and air quality,³ as well as the President's other Executive orders in support of energy independence and American agriculture.⁴

I. THE COMMENTERS' INTEREST

Urban Air Initiative is a nonprofit social welfare organization dedicated to improving fuel quality in order to reduce the public health risks posed by vehicular emissions, especially in urban areas where citizens are exposed to the highest levels of mobile source pollution.

The Clean Fuels Development Coalition was established in 1988 and works with auto, agriculture, and biofuels interests in support of a broad range of energy and environmental programs.

¹ Evaluation of Existing Regulations, 82 Fed. Reg. 17793 (Apr. 13, 2017).

² *Id.*

³ Executive Order 13,777, § 3(d)(v), 72 Fed. Reg. 12,285 (Mar. 1, 2017); *see also* Executive Order 13,771, 82 Fed. Reg. 9339 (Feb. 3, 2017) (Reducing Regulation and Controlling Regulatory Costs).

⁴ Executive Order 13,790, 82 Fed. Reg. 20237 (Apr. 28, 2017).

25x'25 is a diverse alliance of agricultural, forestry, environmental, conservation, and other organizations and businesses that are working collaboratively to advance the goal of securing 25 percent of the nation's energy needs from renewable sources by the year 2025.

Glacial Lakes Energy, LLC, was formed by the Glacial Lakes Corn Processors. Glacial Lakes Corn Processors is a South Dakota cooperative with 4,100 shareholder/investors who reside primarily in eastern South Dakota. Glacial Lakes is the sole owner of two large ethanol production facilities that annually produce over 240 million gallons of high-octane, clean-burning ethanol. Glacial Lakes' purpose is to create value for South Dakota's rural economy by returning dollars to the local economy and by providing good, quality jobs for its citizens.

Siouxland Ethanol, LLC, is a renewable fuel producer currently engaged in the production of ethanol for fuel.

ICM, Inc., is a designer and builder of ethanol plants, and a supplier of proprietary equipment and process technology to ethanol plants and other biofuels facilities.

The Nebraska Ethanol Board is a state agency supporting ethanol programs throughout the state, and assisting the industry with a range of technical marketing and regulatory issues.

The Nebraska Ethanol Industry Coalition is a non-profit organization of ethanol producers, supporters, and related industries working to support ethanol production and utilization in Nebraska and nationwide.

South Dakota Farmers Union, North Dakota Farmers Union, Minnesota Farmers Union, Montana Farmers Union, and Wisconsin Farmers Union are nonprofit organizations that work to promote the interests of farmers, ranchers, and their families, including those who grow corn for use in ethanol fuel blends, in their respective states.

II. BACKGROUND

The only reason ethanol has not yet achieved a greater demand-driven share of the fuel market is that unnecessary EPA regulations have irrationally blocked a market for mid-level ethanol fuel blends. Under free market conditions, ethanol's highest and best use would be as a source of clean octane. Instead, ethanol has been unnecessarily confined to E10—gasoline with 10% ethanol—with the excess senselessly relegated to E85—a fuel that

gives lower mileage and no compensating benefits for drivers. As explained below, EPA can comply with Executive Order 13,777, by repealing and replacing outdated regulatory barriers that have blocked a market for highly efficient next-generation vehicles and the high-octane fuels they require.⁵

III. EPA SHOULD REPEAL UNNECESSARY REGULATORY BARRIERS THAT LIMIT DEMAND FOR ETHANOL.

Ethanol is a cost-effective octane enhancer with low emissions. Because of the demand for more fuel-efficient vehicles, automakers need high-octane fuel to design next-generation engines. Ethanol producers would supply the needed octane to produce these engines if only EPA removed outdated regulatory barriers that constrain ethanol blending.

In its 2014 Tier 3 Rule, EPA acknowledged that E30—gasoline blended with 30% ethanol—“could help manufacturers who wish to raise compression ratios to improve vehicle efficiency as a step toward complying with [EPA’s greenhouse gas and fuel efficiency] standards. This in turn could help provide a market incentive to increase ethanol use beyond E10 and enhance the environmental performance of ethanol as a transportation fuel by using it to enable more fuel efficient engines.”⁶ EPA also recognized that considering fuels and vehicles together as a system “enables emission reductions that are both technologically feasible and cost effective beyond what would be possible looking at vehicle and fuel standards in isolation.”⁷

Auto manufacturers have endorsed the benefits of a higher ethanol fuel. In 2011, the Auto Alliance “recommend[ed] increasing the minimum gasoline octane rating, commensurate with increased use of ethanol” to “help achieve future requirements for the reduction of greenhouse gas emissions.”⁸

⁵ See Letter from President Trump to Friends of Renewable Fuels and Attendees of the 2017 National Ethanol Conference, *available at* <http://bit.ly/2ocHq7O>.

⁶ Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards, 79 Fed. Reg. 23414, 23528 (Apr. 28, 2014).

⁷ *Id.* at 23417.

⁸ Letter from Mitch Bainwol, President and CEO, Alliance of Automobile Manufacturers, to Lisa Jackson, Administrator, EPA (Oct. 6, 2011), *available at* <http://bit.ly/2pr4Z27>.

Likewise, in its 2013 comments on the Tier 3 Rule, Ford agreed with EPA that “increased octane rating from increased ethanol content has the potential to allow for fuel economy, performance and emissions improvements through more efficient engine designs.”⁹ Mercedes commented that “[o]ctane is the single most important property of gasoline when determining engine design,” and “[h]igher octane fuels permit higher compression ratios which directly improve efficiency while downsizing engines also results in greater fuel efficiency.”¹⁰

Even more recently, during EPA’s Mid-Term Evaluation of its 2022-2025 greenhouse gas and fuel efficiency standards, the Auto Alliance pointed out that higher octane fuel “is a key enabler for the next phase of advanced engines.”¹¹ Endorsing a systems approach, the Alliance stressed that “[t]he co-design of fuels and engines is an important pathway to improve fuel economy[,]” urging EPA to “bring[] high octane fuels to market that are aligned with future engine technologies[.]”¹²

Despite the universally acknowledged efficiency and emissions benefits of midlevel ethanol blends, auto manufacturers have not produced the vehicles needed to realize these benefits, and the fuel is not universally available. That is because EPA rules have restricted the use of such fuel in the certification of new vehicles and in the market. EPA can and should repeal and replace these counterproductive rules to open the fuel market to competition.

A. EPA Should Repeal and Replace Certification Fuel Rules that Inhibit Auto Manufacturers from Building More Efficient Vehicles.

In its comments describing the efficiency benefits of vehicles designed for midlevel ethanol blends, Ford Motor Company noted that these next-generation vehicles are “already

⁹ Ford Motor Company, Comments on Proposed Tier 3 Rule, EPA-HQ-OAR-2011-0135-4349 (July 1, 2013), at 17 (hereinafter “Ford Comments”).

¹⁰ Mercedes-Benz USA, EPA-HQ-OAR-2011-0135-4676 (June 28, 2013), at 3.

¹¹ Alliance of Automobile Manufacturers, Comments on Draft Technical Assessment Report, EPA-HQ-OAR-2015-0827-0095 (Sept. 26, 2016), at 71.

¹² *Id.*

found in Europe,” and “the introduction of higher octane rated/intermediate level ethanol blend fuel would allow for a faster introduction of more efficient vehicle designs from Europe . . . without the need for significant design changes.”¹³

Instead of facilitating the marketability of these new high-efficiency vehicles, current EPA rules impede manufacturers from certifying new vehicles on a mid-level ethanol fuel, and they prevent retailers from selling it.¹⁴

EPA should remove counterproductive regulatory barriers, and let the market drive innovation. That would mean letting manufacturers certify new vehicles on an alternative mid-level ethanol certification fuel—like E25—so that vehicle manufacturers could build and sell vehicles that are allowed to use the fuel.

In its Tier 3 Rule, EPA discouraged applications for new test fuels by purporting to require an automaker to demonstrate that a proposed alternative test fuel is already “readily available nationwide.”¹⁵ That was an impossible requirement for a new fuel. In subsequent litigation, however, EPA stated it has discretion to grant applications for test fuels that are not yet commercially available.¹⁶ But EPA has not formally revised the relevant rule to align with the Agency’s assurances in litigation.¹⁷

EPA should repeal and replace its alternative certification fuel rule to clearly state—*as the Agency has already conceded in litigation*—that an auto manufacturer need not demonstrate that a proposed alternative certification fuel is currently available in commerce

¹³ Ford Comments, *supra* note 9, at 17.

¹⁴ Current EPA rules purport to require that a fuel be “commercially available” before it may be approved to certify new vehicles for compliance with emissions and efficiency rules. 40 C.F.R. § 1065.701(c). But EPA has interpreted the “sub-sim” law, 42 U.S.C. § 7545(f), to prohibit the introduction in commerce of fuel with higher levels of ethanol than the existing certification fuel. *See infra*. EPA’s interpretation and application of these statutory and regulatory provisions created a regulatory catch-22, making it impossible to test fuels that are not already commercially available.

¹⁵ Tier 3 Rule, 79 Fed. Reg. 23414 (Apr. 28, 2014) (interpreting 40 C.F.R. § 1065.701(c)).

¹⁶ EPA Response to Pet’n for Panel Reh’g at 7 n.3, *Energy Future Coalition v. EPA*, No. 14-1123 (Sept. 21, 2015) (“The Agency has ample discretion to consider requests on a case-by-case basis, and may evaluate trends and future market projections when considering whether to approve an alternative test fuel that is not currently on the market.”).

¹⁷ *See* 40 C.F.R. § 1065.701(c).

nationwide. It should suffice for a manufacturer to declare, based on its judgment and experience, that the requested fuel would likely be marketable in the future. The rule should also make clear that EPA may approve such a certification fuel for vehicles that also run on ordinary gasoline, as dual-fueled vehicles do by definition. Clarifying the rule in this way will encourage auto manufacturers to apply for a new certification fuel and build more efficient, cleaner, and cost-effective vehicles.

The regulatory barriers posed by EPA's alternative certification fuel rule are explained in greater detail in an appendix to these comments.¹⁸

B. EPA Should Repeal and Replace Its Erroneous and Outdated Interpretation of the Sub-Sim Law as Capping Ethanol Use in Existing Vehicles.

EPA misinterprets the Clean Air Act to limit the concentration of ethanol that may be blended into gasoline for use in gasoline-fueled vehicles.¹⁹ Current EPA rules prohibit the sale of midlevel ethanol blends in gasoline-fueled vehicles produced before model year 2001.²⁰ EPA's proposed Renewables Enhancement and Growth Support Rule (the REGS Rule) would go further—prohibiting the sale and (for the first time) the use of gasoline containing more than 15% ethanol in any gasoline-fueled vehicle.²¹

EPA's ban on higher concentrations of ethanol is based on a misinterpretation of the “sub-sim” law, section 211(f) of the Clean Air Act. That law restricts the sale of fuel additives that are not “substantially similar” to additives in the EPA-approved test fuels used to certify new vehicles.²² But ethanol is already used in an EPA-approved test fuel and therefore satisfies the “substantially similar” requirement: As of 2017, the gasoline

¹⁸ See Appendix A, Repealing and Replacing EPA's Alternative Certification Fuel Rules.

¹⁹ See Letter from Adam M. Kushner, Air Enforcement Div., EPA, to Bob Greco, Dir. Downstream and Industrial Operations, API, at 1 (July 31, 2008).

²⁰ See 40 C.F.R. § 80.1504(a)(1). *But cf.* 56 Fed. Reg. 5352 (Feb. 11, 1991) (interpretive rule limiting the oxygen content of gasoline to 2.7% by weight, equivalent to significantly less than 10% ethanol).

²¹ *Renewables Enhancement and Growth Support Rule*, Proposed Rule, 81 Fed. Reg. 80828, 80975 (Nov. 16, 2016) (to be codified at 40 C.F.R. § 80.1564(a)(3)).

²² 42 U.S.C. § 7545(f)(1)(B).

certification fuel contains 10% ethanol.²³ However, EPA says it “would need to approve a new waiver request [under the sub-sim law] for E16 or other higher-level ethanol blends to be used in gasoline vehicles.”²⁴ That interpretation cannot be squared with the plain meaning of the statute.

EPA’s misinterpretation of the sub-sim law evades the statutory requirements for regulating fuels. Under section 211(c), EPA must demonstrate that ethanol harms public health or emissions control devices before the Agency may limit its concentration in gasoline. EPA has not attempted to make this demonstration, and the best available science demonstrates that adding ethanol to gasoline reduces emissions of harmful pollutants.

By misinterpreting the sub-sim law, EPA has unfairly shifted its legal burden to ethanol producers, requiring them to prove (contrary to section 211(c)) that a given concentration of ethanol will *not* cause a vehicle’s emissions control system to fail. Only then would EPA grant a waiver of the sub-sim law and allow the fuel to be sold.

Urban Air Initiative (UAI) and a broad coalition of ethanol plants and farming groups have filed comments asking EPA to correct its erroneous interpretation of the sub-sim law and to affirm that the law does not prohibit the use of mid-level ethanol blends in gasoline-fueled cars.²⁵ The proposed rule’s purpose is to “facilitate further expansion of ethanol blended fuels,”²⁶ but codifying EPA’s mistaken ban on mid-level ethanol blends would have the opposite effect. EPA should repeal prior rules and guidance misinterpreting the sub-sim law to limit the concentration of ethanol in gasoline,²⁷ and replace them with a rule that correctly interprets the sub-sim law according to its plain meaning: it cannot limit ethanol blending, because ethanol is a fuel additive used in certification.

²³ 40 C.F.R. § 1065.710(b)(2).

²⁴ Proposed REGS Rule, *supra* note 21, 81 Fed. Reg. at 80831.

²⁵ Urban Air Initiative et al., Comments on Renewables Enhancement and Growth Support Rule, EPA-HQ-OAR-2016-0041 (Feb. 16, 2017).

²⁶ *Id.* at 80831.

²⁷ *See supra* note 20.

EPA's misinterpretation of the sub-sim law is explained in greater detail in an appendix to these comments.²⁸

C. EPA Should Repeal and Replace Its Irrational RVP Rule that Limits the Viability of E15 and Mid-Level Ethanol Blends.

Even for ethanol blends that are not constrained by EPA's interpretation of the sub-sim law, the Agency's outdated RVP rule limits the times of year in which they may be used. The result is that most drivers today have no access to E15, even though, for several years, E15 has been approved for use in Model Year 2001 and newer vehicles.²⁹ That is because EPA has needlessly interpreted the Clean Air Act to deprive higher ethanol blends of the benefit of a partial waiver of the Reid Vapor Pressure (RVP) limit, a waiver that—by statute—ought to apply to all gasoline containing at least 10% ethanol.³⁰

RVP is a measure of a fuel's tendency to evaporate. In general, fuel must have an RVP of 9 psi or less. But under section 211(h)(4) of the Clean Air Act, a less stringent standard of 10 psi governs "fuel blends containing gasoline and 10 percent denatured anhydrous ethanol."³¹ EPA interprets this to apply only to gasoline containing 9 or 10 percent ethanol, effectively inserting the phrase *no more than* into the statute. But the text of the statute hardly requires that result; particularly given the statutory context and the properties of ethanol blends in excess of E10, the text makes better sense if it is read as encompassing fuel blends that contain at least 10 percent ethanol.

EPA's past interpretation is unreasonable, because fuel's evaporative tendency diminishes with increasing levels of ethanol over 10%. In other words, E15 has lower evaporative emissions than E10 does. But, as a result of EPA's double standard, retailers must stop selling E15—an otherwise legal fuel, with lower RVP than E10—during certain times of year or else use a separate low-vapor-pressure gasoline blendstock for E15. Thus, EPA regulations have artificially depressed the amount of clean-octane ethanol in the

²⁸ See Appendix B, Repealing and Replacing EPA's Interpretation of the Sub-Sim Law.

²⁹ Partial Grant of Clean Air Act Waiver Application Submitted by Growth Energy To Increase the Allowable Ethanol Content of Gasoline to 15 Percent, 76 Fed. Reg. 4662 (Jan. 26, 2011).

³⁰ *Id.* at 4675.

³¹ 42 U.S.C. § 7545(h)(4).

market, despite the economic and environmental benefits that would come with increased ethanol consumption.

This issue is also relevant to blends over E15. EPA's interpretation of the one-pound waiver would irrationally limit the use of E25 as well, even though E25 is an even cleaner (and more efficient) fuel with less evaporative emissions and lower RVP than both E10 and E15. Maintaining EPA's unnecessary and counterproductive interpretation of the waiver provision would delay commercial adoption of the fuel the auto industry needs for the next generation of highly efficient engines.

EPA should repeal its rule arbitrarily limiting the one-pound waiver to blends of no more than 10% ethanol. EPA's legal authority to reinterpret the one-pound waiver to extend to higher ethanol blends is explained in greater detail in an appendix to these comments.³²

D. EPA Should Repeal and Replace Its Inaccurate Fuel Economy Formula.

EPA should repeal and replace its outdated fuel economy formula. EPA has admitted that part of its fuel efficiency formula is erroneous and that it unfairly penalizes fuel with ethanol in it; but EPA did not take steps to fix the problem. The problem is an important one for automakers that face increasingly stringent fuel economy standards, and it discourages them from developing high-efficiency engines that require higher octane ratings, which for present purposes means higher ethanol content, although that could change with new technology.

In brief, the fuel-economy calculation contains an "R-factor," which is intended to make fuel economy testing on today's fuel equivalent to fuel economy testing in 1975 by adjusting for the lower energy content of ethanol.³³ But as EPA has acknowledged, the current EPA-mandated R-factor of 0.6 is erroneous, and fails to achieve its statutory

³² See Appendix C, Repealing and Replacing EPA's Limit on Ethanol's One-Pound RVP Waiver.

³³ See 26 U.S.C. § 4064(c) ("Fuel economy . . . shall be measured in accordance with testing and calculation procedures . . . utilized by the EPA Administrator for model year 1975 . . . or procedures which yield comparable results.").

purpose.³⁴ The auto industry has asked EPA for an R-factor of 1.0.³⁵ In response, EPA has acknowledged that the current R-factor is wrong and suggested that a corrected value might lie “between 0.8 and 0.9.”³⁶

Although EPA has promised to fix the R-factor as necessary,³⁷ the Agency has failed to act.

More fundamentally, the current fuel economy formula fails to account for the reduction of petroleum consumption that is achieved by the ethanol portion of gasoline. Under the Energy Independence and Security Act of 2007 (EISA), EPA has authority to promote energy independence by “decid[ing] on the quantity of other fuel that is equivalent to one gallon of *gasoline*.”³⁸ EPA has relied on that authority to calculate a fuel efficiency credit for electric vehicles, thus making compliance easier for auto manufacturers.³⁹ EPA should treat ethanol no differently than electricity for this purpose, treating (for example) gasoline with 10% ethanol (E10) as equivalent to 90% of a gallon of gasoline for purposes of fuel economy compliance.

³⁴ The error of the current R-factor, and its negative impact on ethanol due to that fuel’s lower energy density, is explained in detail in comments filed by Boyden Gray & Associates. Energy Future Coalition & Urban Air Initiative, Comments on Proposed Tier 3 Rule, EPA-HQ-OAR-2011-0135-4353 (July 1, 2013), at 41-43 & Appendix I, *available at* <http://boydengrayassociates.com/comments-of-the-energy-future-coalition-and-urban-air-initiative-on-proposed-tier-3-motor-vehicle-emission-and-fuel-standards-july-1-2013/>.

³⁵ Stephen Douglas & Julia Rege, Alliance of Automobile Manufacturers & Association of Global Automakers, Comments on Proposed Tier 3 Rule, EPA- HQ-OAR-2011-0135-4461 (July 1, 2013), at 93.

³⁶ Aron Butler, Analysis of the Effects of Changing Fuel Properties on the EPA Fuel Economy Equation and R-Factor, at 4–5, Memorandum to the Tier 3 Docket, EPA-HQ-OAR-2011-0135 (Feb. 28, 2013).

³⁷ 79 Fed. Reg. at 23531 (“While there has been some data evaluated to assess the impact of changing the emission test fuel on the ‘R’ factor, EPA did not propose a value in the NPRM and specifically stated that we would continue to investigate this issue and if necessary address it as part of a future action, as opposed to changing it in the Tier 3 final rule.”); *id.* at 23532 (“EPA expects to have the needed data in early to mid 2015 and will then be in a position to conduct a thorough assessment of the impacts of different emission test fuels on Tier 3/LEV III vehicles and develop any appropriate adjustments and changes, in consultation and coordination with NHTSA.”).

³⁸ 49 U.S.C. § 32904(c) (emphasis added).

³⁹ Response to Comments on the 2012 CAFE Rule, at 6-164.

The defects in EPA's fuel economy formula are explained in greater detail in an appendix to these comments.⁴⁰

E. EPA Should Repeal and Replace Its Rule Requiring States To Use Incorrect Emissions Estimates in Pollution Reduction Planning.

EPA added a new regulatory impediment to higher ethanol usage when it published a vehicular emissions model called MOVES2014a that reports inaccurate estimates of ethanol's emissions effects. EPA rules require States to use the new model in constructing their State Implementation Plans (SIPs) for compliance with EPA's National Ambient Air Quality Standards (NAAQS).⁴¹

The MOVES2014a model is based on an EPA-commissioned fuel study that employed a faulty "match-blending" methodology to study emissions using test fuels that are not sold, and cannot legally be sold, in the marketplace. Contrary to multiple peer-reviewed fuel studies, this analysis erroneously blames ethanol for emissions effects that were actually caused by the addition of toxic aromatic hydrocarbons to the test fuel along with ethanol.⁴² (The match-blending approach was later rejected in a peer-reviewed paper authored by Ford and GM engineers.)⁴³

The MOVES2014a model is also flawed on procedural grounds. When EPA promulgated the rule mandating the use of MOVES2014, it failed to use the notice-and-comment procedure required by the Administrative Procedure Act, even though the Agency had given advance notice and accepted public comment on past models.⁴⁴ The States of

⁴⁰ See Appendix D, Repealing and Replacing EPA's Erroneous Fuel Economy Calculation.

⁴¹ Official Release of the MOVES2014 Motor Vehicle Emissions Model for SIPs and Transportation Conformity, 79 Fed. Reg. 60343 (Oct. 7, 2014).

⁴² See State of Kansas et al., Request for Correction re EPAct/V2/E-89 Fuel Effects Study and Motor Vehicle Emissions Simulator Model (MOVES2014), RFC 17001 (Jan. 19, 2017), available at https://www.epa.gov/sites/production/files/2017-02/documents/epact_-_fuel_effects_study_rfc_17001.pdf.

⁴³ James E. Anderson et al., *Issues with T50 and T90 as Match Criteria for Ethanol-Gasoline Blends*, SAE International, 2014-01-9080, (Nov. 1, 2014).

⁴⁴ See Brief for Petitioners, *Kansas v. EPA*, No. 14-1268 (D.C. Cir. Oct. 28, 2015), available at <http://boydengrayassociates.com/petitioners-opening-brief-kansas-v-epa-no-14-1268-d-c-cir-july-2-2015/>.

Kansas and Nebraska challenged the MOVES2014 model on the basis of this procedural violation and the model's substantive defects. The D.C. Circuit did not reach the merits; it concluded that the States lacked standing, because they were currently in compliance with the air quality standards and thus did not yet have to use the model.⁴⁵ States will have standing if EPA finalizes nonattainment designations under the new air quality standard for ozone.

EPA is now developing the next version of the model while its MOVES Review Work Group reviews the current model. EPA has not indicated whether the new model will go through notice-and-comment rulemaking. Unless EPA changes its approach, the Agency will continue to rely on data from a flawed fuel study whose design process was, contrary to the requirements of the Executive Order, "insufficiently transparent to meet the standard of reproducibility."⁴⁶

By requiring States to use this inaccurate model, EPA deprived States of their lawful discretion to decide whether to adopt NAAQS attainment strategies that encourage the use of ethanol in motor vehicle fuel within their borders. Instead, MOVES2014a encourages States to adopt counterproductive policies that *delay* NAAQS attainment by limiting the ethanol content of fuel. That not only violates basic cooperative federalism principles; it is perverse from an air quality and human health perspective. Increased levels of ethanol would reduce pollution, as demonstrated by numerous peer-reviewed studies.⁴⁷

EPA should repeal its rule requiring the States to use flawed emission factors, and EPA should repeal and replace its flawed model with emission factors that accurately predict ethanol's effect on emissions. Until a replacement model can be developed, EPA

Boyden Gray & Associates represented the States of Kansas and Nebraska, the Energy Future Coalition, and Urban Air Initiative as petitioners challenging the model.

⁴⁵ *Kansas v. EPA*, 638 Fed. App'x 11 (D.C. Cir. 2016).

⁴⁶ Request for Comment, 82 Fed. Reg. at 17,793 (noting that Executive Order 13,777 requires EPA to "evaluate regulations that rely in whole or in part on data, information, or methods that are not publicly available or that are insufficiently transparent to meet the standard of reproducibility").

⁴⁷ Anderson, *supra* note 43, at 1031 & nn.1, 13, 14, 15, 16, 17, 18, 19) (citing studies).

should lock the MOVES2014 model's ethanol parameter at 10% to prevent spurious comparisons between fuels with different levels of ethanol content.

A more detailed explanation of the defects in the MOVES2014 emissions model is provided in an appendix to these comments,⁴⁸ and in a Request for Correction of Information.⁴⁹

CONCLUSION

Ethanol is a price-competitive, safe, and efficient high-octane fuel additive, but its highest and best use is currently thwarted by counterproductive EPA rules. Each of these EPA regulatory barriers has senselessly limited competition in the market for transportation fuel, killing American jobs and depriving drivers of more economical and healthier alternatives to regular gasoline.

Repealing and replacing regulatory barriers that frustrate the market for midlevel ethanol blends would effectuate the President's regulatory reform orders.⁵⁰ These actions will also help EPA to comply with other Executive Orders by advancing energy independence and American agriculture.⁵¹

⁴⁸ See Appendix E, Repealing and Replacing EPA's MOVES2014a Emissions Model.

⁴⁹ State of Kansas et al., Request for Correction re EPA's V2/E-89 Fuel Effects Study and Motor Vehicle Emissions Simulator Model (MOVES2014), RFC 17001 (Jan. 19, 2017), *available at* https://www.epa.gov/sites/production/files/2017-02/documents/epact_-_fuel_effects_study_rfc_17001.pdf.

⁵⁰ See Executive Order 13,777, § 3(d)(v), 72 Fed. Reg. 12,285 (Mar. 1, 2017); Executive Order 13,771, 82 Fed. Reg. 9339 (Feb. 3, 2017) (Reducing Regulation and Controlling Regulatory Costs).

⁵¹ Executive Order 13,790, 82 Fed. Reg. 20237 (Apr. 28, 2017).

Appendix A

Reforming EPA's Alternative Certification Fuel Rules

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May 15, 2017

To: Samantha K. Dravis
Regulatory Reform Officer and Associate Administrator, Office of Policy,
Environmental Protection Agency

Re: EPA Should Repeal Unnecessary Test Fuel Application Standards and Approve a
Midlevel Ethanol Alternative Certification Fuel

Certification Fuel Properties Limit the Vehicles Automakers Can Build.

“Before a manufacturer may introduce a new motor vehicle into commerce, it must obtain an EPA certificate indicating compliance with the requirements of the Act and applicable regulations.”¹ To obtain the necessary certificate, automobile manufacturers must test new vehicle models for compliance with air toxic emissions standards using a special “test fuel” (or “certification fuel”) whose properties are defined by EPA.² The same procedures and test fuel are used to ensure that manufacturers meet NHTSA and EPA’s increasingly stringent fuel efficiency and greenhouse gas standards on a fleet-wide basis.³

The makeup of the test fuel therefore determines the kinds of engines that car companies are able to design, build, and sell. It also determines the kinds of fuel that may lawfully be sold, because the composition of commercial fuel is governed by the Clean Air Act’s “sub-sim” law,⁴ and EPA interprets this requirement to limit the ethanol content of market fuel to the ethanol content of the test fuel.⁵

EPA Raised the Possibility of a Midlevel Ethanol Test Fuel.

Under 40 C.F.R. § 1065.701(c), EPA may approve an auto manufacturer’s request for an alternative certification fuel.

¹ *Ethyl Corp. v. EPA*, 306 F.3d 1144, 1146 (D.C. Cir. 2002); see 42 U.S.C. § 7522(a)(1) (prohibiting sale of vehicles without a certificate of conformity).

² See 42 U.S.C. § 7521 (authorizing EPA to prescribe emission standards); *id.* § 7525(a)(4)(A) (authorizing EPA to set and revise “test procedures” and test “fuel characteristics”).

³ See CAFE Rule, 77 Fed. Reg. 62624.

⁴ 42 U.S.C. § 7545(f)(1)(B). Under the plain meaning of the sub-sim law, it does not limit ethanol blending, because ethanol is a fuel a “fuel additive utilized in the certification of any . . . vehicle.” *Id.* But EPA recently proposed to codify its interpretation of the sub-sim law to prohibit the sale of gasoline blends with more than 15% ethanol for use in gasoline-fueled vehicles. *Renewables Enhancement and Growth Support Rule*, Proposed Rule, 81 Fed. Reg. 80828, 80975 (Nov. 16, 2016) (to be codified at 40 C.F.R. § 80.1564(a)(3)).

⁵ *Renewables Enhancement and Growth Support Rule*, Proposed Rule, 81 Fed. Reg. 80828, 80975 (Nov. 16, 2016) (to be codified at 40 C.F.R. § 80.1564(a)(3)).

In the Tier 3 rulemaking that applied this rule to light-duty vehicles, EPA suggested that the Agency would approve an alternative certification fuel “if manufacturers were to design vehicles that required operation on a higher octane, higher ethanol content gasoline (*e.g.*, dedicated E30 vehicles or [flexible-fuel vehicles] optimized to run on E30 or higher ethanol blends).”⁶

EPA acknowledged that such a certification fuel with 30% ethanol “could help manufacturers who wish to raise compression ratios to improve vehicle efficiency as a step toward complying with the 2017 and later light-duty greenhouse gas and CAFE standards. This in turn could help provide a market incentive to increase ethanol use beyond E10.”⁷

The Auto Industry Responded in Favor of a Midlevel Ethanol Test Fuel.

The auto industry responded favorably to the prospect of a new high-octane certification fuel with higher ethanol content. The Alliance of Automobile Manufacturers and the Association of Global Automakers explained that ethanol’s “in cylinder cooling effect,” along with its high octane rating, make a “mid-level gasoline-ethanol blend” particularly well suited for “improv[ing] vehicle efficiency and lower[ing] GHG emissions,” through “increas[ing] the engine compression ratio” and “downsizing of the engine.”⁸

General Motors, Ford, and Mercedes-Benz each filed separate comments endorsing the concept of a higher octane, mid-blend ethanol certification fuel.⁹ Ford “strongly recommend[ed] that EPA pursue regulations . . . to facilitate the introduction of higher octane rating market fuels,” noting that they “offer the potential for the introduction of more efficient vehicles.”¹⁰ In light of the increasing stringency of the CAFE Rule, Ford’s recommendation

⁶ Tier 3 Rule, 79 Fed. Reg. at 23528.

⁷ *Id.* at 23528-29.

⁸ Stephen Douglas & Julia Rege, Alliance of Automobile Manufacturers & Association of Global Automakers, Comments on Proposed Tier 3 Rule, EPA-HQ-OAR-2011-0135-4461 (July 1, 2013), at 52 (hereinafter “Auto Alliance Comments”). The trade groups noted that “[w]hile higher ethanol, higher octane fuels can be useful in all types of engines to varying degrees, they are of particular benefit to direct-injection (DI) engines,” which are becoming more prevalent because of their efficiency benefits. *Id.* at 53.

⁹ See Julian Soell & R. Thomas Brunner, Mercedes-Benz, Comments on Proposed Tier 3 Rule, EPA-HQ-OAR-2011-0135-4676 (June 28, 2013), at 3-4 (hereinafter “Mercedes Comments”); GM Comments at 14 (“support[ing] the future of higher octane and higher ethanol content in order to provide a pathway to improved vehicle efficiency and lower GHG emissions”); Cynthia Williams, Ford Motor Company, Comments on Proposed Tier 3 Rule, EPA-HQ-OAR-2011-0135-4349 (July 1, 2013), at 16 (hereinafter “Ford Comments”) (“Ford supports the development and introduction of an intermediate level blend fuel (E16-E50), with a minimum octane rating of 91 anti-knock index (AKI) that increases proportionally as ethanol is splash-blended on top of the base Tier 3 gasoline emission test fuel. The development of such a fuel would enable the first steps to the development of a new generation of highly efficient internal combustion engine vehicles. We look forward to future collaboration with the EPA on this item.”); *id.* at 3 (commending the idea of “maximiz[ing] vehicle efficiency in tandem with use of renewable fuels”).

¹⁰ Ford Comments, *supra* note 9, at 3.

was time sensitive: “Progress on this issue will be a key parameter for consideration in [EPA and NHTSA’s] . . . mid-term evaluation” of the light-duty CAFE Rule in 2017.¹¹

The manufacturers expressed their need for a high-octane mid-level ethanol blend test fuel as a means of improving fuel efficiency through higher compression ratios.¹² The automakers explained why octane-rich ethanol’s contribution to lower carbon emissions, increased fuel efficiency, and improved driving performance makes a mid-level ethanol blend the optimal solution for automakers’ octane needs.¹³ Finally, they explained that selling vehicles designed for such a fuel is not only feasible—it is being done already in foreign markets.¹⁴

EPA’s “Readily Available Nationwide” Standard Would Have Blocked a Midlevel Ethanol Test Fuel.

The auto industry and other groups expressed concern that a request for an alternative certification fuel rule under 40 C.F.R. § 1065.701(c) would be thwarted by that rule’s requirement that the proposed alternative certification fuel be “commercially available.”¹⁵ In

¹¹ *Id.* (citing 77 Fed. Reg. 62624 (Oct. 15, 2012)).

¹² See Ford Comments, *supra* note 9, at App’x A: Literature Review of Benefits of High Octane/High Ethanol Fuels, at 2) (“Fuel with higher octane ratings will also be increasingly important for advanced engines now being introduced that provide greater efficiency through downsizing and/or turbocharging, and that operate more often at high load where the most efficient operating conditions are limited by knock.”); Mercedes Comments, *supra* note 9, at 3–4 (“Octane is the single most important property of gasoline when determining engine design. . . . Higher octane fuels permit higher compression ratios which directly improve efficiency while downsizing engines also results in greater fuel efficiency. The optimized combination of those two actions with gasoline direct-injection provides remarkable gains in fuel economy but requires high octane market fuel—higher octane than is available today.”).

¹³ See Ford Comments, *supra* note 9, at 17 (“The higher octane number . . . for ethanol versus today’s regular gasoline . . . and higher heat of vaporization associated with gasoline-ethanol blends can improve engine efficiency through engine redesign and use of higher compression ratios. . . . [I]ncreased octane rating from increased ethanol content has the potential to allow for fuel economy, performance and emissions improvements through more efficient engine designs. Raising the minimum octane rating requirement would allow manufacturers to design engines with greater thermal efficiency through higher compression ratios and/or smaller displacement turbo-charged engines. Current engines in the fleet could also benefit from the higher octane rating through more aggressive spark timing during certain driving conditions.”); Mercedes Comments, *supra* note 9, at 4 (“This powerful fuel enjoys both reduced carbon intensity as well as the renewable aspects of ethanol. A vehicle equipped with a powertrain . . . optimized for a high-octane, mid-blend ethanol fuel . . . can simultaneously fulfill what the customer desires—performance and economy, while reducing the environmental impact.”).

¹⁴ See Ford Comments, *supra* note 9, at 17 (“High compression ratio engines are already found in Europe [T]he introduction of higher octane rated/intermediate level ethanol blend fuel would allow for a faster introduction of more efficient vehicle designs from Europe with lower CO₂ emissions and increased efficiency . . . without the need for significant design changes.”); Mercedes Comments, *supra* note 9, at 4 (“Mercedes-Benz vehicle offerings include those with E25 capability in various global markets that could be introduced . . . to the U.S. market if regulatory and commercial conditions warrant.”).

¹⁵ 40 C.F.R. § 1065.701(c)(1)(ii); see also Energy Future Coalition & Urban Air Initiative, Comments on Proposed Tier 3 Rule, EPA-HQ-OAR-2011-0135-4353 (July 1, 2013), at 9.

the preamble to the Tier 3 Rule, EPA suggested that an alternative test fuel must be “readily available nationwide” to satisfy this requirement.¹⁶

The Energy Future Coalition and Urban Air Initiative challenged the alternative certification fuel rule in the D.C. Circuit, arguing that EPA’s “readily available nationwide” standard was arbitrary and capricious because it was impossible to meet.

EPA Rescinded its “Readily Available Nationwide” Standard in Favor of Discretionary Consideration of Future Availability.

In the course of the litigation, EPA conceded that it could approve an automaker’s application for alternative test fuels without requiring that the fuel be “readily available nationwide.”¹⁷ That language in the preamble was a nonbinding paraphrase of the rule itself. And EPA further conceded that the rule’s “commercial available” standard is a discretionary “factor[] EPA would consider,” rather than a “mandatory prerequisite” for approving a new test fuel.¹⁸ At oral argument, EPA conceded that the rule’s reference to “commercial availability” merely “codif[ies] the practice of the agency,” which has been to consider a new fuel’s potential to become commercially viable in the future.¹⁹ Therefore, EPA has discretion to approve an alternative certification fuel that is not yet on the market, but is likely to be commercially viable.²⁰

Moreover, EPA said that until Model Year 2022, an automaker’s application for an alternative test fuel can be evaluated without regard to commercial availability or any other “substantive criteria.” In its brief to the Court, EPA identified 40 C.F.R. § 86.113-94(g) as an alternate mechanism for requesting and approving a new test fuel, separate from § 1065.701(c), which “need not be used by vehicle manufacturers until model year 2022.”²¹ Section 86.113-94(g) does not mention commercial availability or any of the other requirements of § 1065.701(c). Relying on that rule, EPA emphasized that manufacturers could get permission to use alternative test fuel “without specifying any substantive criteria.”²²

¹⁶ Tier 3 Rule, 79 Fed. Reg. at 23528.

¹⁷ EPA Brief at 50, *Energy Future Coal. v. EPA*, No. 14-1123 (D.C. Cir. Feb. 11, 2015).

¹⁸ *Id.* at 26.

¹⁹ Transcript of Oral Argument 23, *Energy Future Coal. v. EPA*, No. 14-1123 (D.C. Cir. Mar. 20, 2015).

²⁰ EPA Brief at 44 (“EPA did not require strict compliance with the listed factors.”); *id.* (“§ 1065.701(c) identifies ‘commercial availability’ of a proposed test fuel as a factor EPA will consider, but does not require that all such listed factors be met for approval.”); *see also* EPA Response to Pet’n for Reh’g at 7 n.3 (“The Agency has ample discretion to consider requests on a case-by-case basis, and may evaluate trends and future market projections when considering whether to approve an alternative test fuel that is not currently on the market.”)

²¹ EPA Brief at 11.

²² EPA Brief at 3; *see also id.* at 26 (“Tier 3 retained the existing alternative test fuel provision at 40 C.F.R. § 86.113-94(g), which does not specify criteria, such as commercial availability.”).

The D.C. Circuit Suggested E30 Would Be Commercially Viable if Approved.

In light of these concessions, the D.C. Circuit upheld the rule: It was “reasonable for EPA to require vehicle manufacturers to use the same fuels in emissions testing that vehicles *will* use out on the road.”²³ But the Court also suggested that a midlevel ethanol fuel could meet this forward-looking standard. Based on the automakers comments in support of a new fuel, the Court found that “if EPA permitted vehicle manufacturers to use E30 as a test fuel, there is substantial reason to think that at least some vehicle manufacturers would use it.”²⁴

EPA Should Repeal its Unnecessary “Commercially Available” Standard and Approve a Midlevel Ethanol Test Fuel.

EPA should repeal its unnecessary “commercially available” fuel standard to align with the commitment the Agency has already made in court. In addition, if the auto industry accepts EPA’s invitation to apply for a midlevel ethanol certification fuel, EPA should grant that application, or unilaterally approve a new test fuel on its own initiative as the Agency has done in the past. As Ford said in its comments, a high-octane, high-ethanol certification fuel is relevant to the Midterm Evaluation of the GHG standard, because it is a key enabler of next-generation vehicle efficiency technology.²⁵ EPA could encourage an auto manufacturer’s application by publicly reinforcing the interpretation it stated in litigation: immediate nationwide commercial availability is not a prerequisite for approval of an alternative certification fuel.

²³ *Energy Future Coal. v. EPA*, 793 F.3d 141, 146 (D.C. Cir. 2015).

²⁴ *Id.*

²⁵ Ford Comments, *supra* note 9, at 3 (citing 77 Fed. Reg. 62624 (Oct. 15, 2012)).

Appendix B

Reforming EPA's Interpretation of the Sub-Sim Law

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May 15, 2017

To: Samantha K. Dravis
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Environmental Protection Agency

Re: EPA Should Correct its Misinterpretation of the Sub-Sim Law.

Last year, EPA proposed the Renewables Enhancement and Growth Support (REGS) Rule. If finalized, the REGS Rule would prohibit “the sale or introduction of gasoline containing greater than 15 volume percent ethanol . . . into any model year 2001 or newer . . . motor vehicle,”¹ with the exception of FFVs.² EPA implies that this policy is required by the “sub-sim” law, section 211(f) of the Clean Air Act.³ It follows that EPA “would need to approve a new [sub-sim] waiver request for E16 or other higher-level ethanol blends to be used in [non-FFV] gasoline vehicles.”⁴

The Proposed Rule should not be finalized, because EPA’s interpretation violates the plain meaning of the “sub-sim” statute and would impose a needless regulatory burden on ethanol producers, fuel retailers, and drivers. In addition, EPA should repeal prior interpretative rules misinterpreting section 211(f), and replace them with an interpretative rule clarifying that section 211(f) does not prohibit the sale of midlevel ethanol blends.

The REGS Rule Is Based on a Misinterpretation of the Sub-Sim Law.

In the sub-sim law, Congress made it unlawful “to first introduce into commerce, or to increase the concentration in use of, any fuel or fuel additive for use by any person in motor vehicles . . . which is not substantially similar to any fuel or fuel additive utilized” in the certification of new motor vehicles.⁵

EPA has historically controlled ethanol levels in gasoline by interpreting the sub-sim law to “regulate the . . . *total concentration* of fuel and fuel additives.”⁶ Thus, in 2008, EPA declared that under CAA § 211(f), “it is illegal for owners or operators of retail gasoline stations to sell

¹ *Renewables Enhancement and Growth Support Rule*, 81 Fed. Reg. 80828, 80975 (Nov. 16, 2016) (hereinafter Proposed Rule) (to be codified at 40 C.F.R. § 80.1564(a)(3)).

² *Id.* (to be codified at 40 C.F.R. § 80.1564(a)(4)).

³ *Id.* at 80830.

⁴ *Id.* at 80831.

⁵ 42 U.S.C. § 7545(f)(1)(B).

⁶ Proposed Rule, *supra* note 1, at 80877–78 (emphasis added); see *Regulation of Fuels and Fuel Additives; Definition of Substantially Similar*, 56 Fed. Reg. 5352, 5354 (Feb. 11, 1991); Kelsi Bracmort, Cong. Research Serv., R40445, *Intermediate-Level Blends of Ethanol in Gasoline, and the Ethanol ‘Blend Wall’* 7 (2011) (“EPA has defined gasoline content (by weight), effectively limiting the concentration to roughly 7.5% (by volume).”).

gasoline blended with more than 10% ethanol for use in gasoline-only vehicles and engines.”⁷ And in 2011, EPA granted a sub-sim waiver allowing the use of gasoline with 15% ethanol in model year 2001 and newer vehicles.⁸ This waiver reaffirmed EPA’s view that the sub-sim law limited the allowable concentration of ethanol in gasoline. As a condition of the waiver, for example, EPA required fuel manufacturers to adopt “[r]easonable measures . . . ensuring that consumers do not misfuel” by using gasoline with more than 15% ethanol in “vehicles or engines not covered by the waiver.”⁹

Beginning this year (2017), automakers are required to certify light-duty vehicles using a test fuel that contains 10% ethanol—in excess of the 2.7% percent oxygen cap in EPA’s obsolete definition of “substantially similar.”¹⁰ Even though ethanol is now undoubtedly a fuel additive used in certification, the Proposed Rule insists that E16–E83 blends “cannot legally be used in a conventional gasoline vehicle” without a waiver of the sub-sim law.¹¹

The Sub-Sim Law Does Not Limit the Concentration of Ethanol in Gasoline.

The sub-sim law prohibits increasing the concentration of fuel additives that are *not* substantially similar to a certification fuel,¹² but it does not limit ethanol content. To be sure, ethanol is a “fuel additive.”¹³ But ethanol is substantially similar to a fuel additive used in the certification of new vehicles. Indeed, ethanol itself *is* a fuel additive used in certification: the new gasoline test fuel, for example, contains 9.6% to 10% ethanol.¹⁴ Whatever interpretations it may allow, the term “substantially similar” cannot reasonably be interpreted to *exclude* fuel additives that are *identical* to those used in certification.¹⁵ Yet that is exactly what EPA’s interpretation does by capping ethanol blending despite its use in certification fuel.

⁷ Letter from Adam M. Kushner, Air Enforcement Div., EPA, to Bob Greco, Dir. Downstream and Industrial Operations, API, at 1 (July 31, 2008).

⁸ *Partial Grant of Clean Air Act Waiver Application Submitted by Growth Energy To Increase the Allowable Ethanol Content of Gasoline to 15 Percent*, 76 Fed. Reg. 4662, 4682 (Jan. 26, 2011).

⁹ *Id.*

¹⁰ 40 C.F.R. § 1065.710(b)(2).

¹¹ Proposed Rule, *supra* note 1, at 80843; *id.* at 80975 (to be codified at 40 C.F.R. § 80.1564(a)(3)).

¹² 42 U.S.C. § 7545(f)(1)(B).

¹³ See 40 C.F.R. § 79.2(e) (defining additive).

¹⁴ 40 C.F.R. § 1065.710(b)(2).

¹⁵ See *United States v. Home Concrete & Supply, LLC*, 132 S. Ct. 1836, 1846 n.1 (2012) (Scalia, J., concurring in part and concurring in the judgment) (“It does not matter whether the word ‘yellow’ is ambiguous when the agency has interpreted it to mean ‘purple’ ”) (citation omitted).

The Act’s Structure Conflicts with EPA’s Interpretation of “Substantially Similar.”

EPA’s interpretation of the sub-sim law is also “inconsistent with the administrative structure that Congress enacted into law.”¹⁶ A “telling indication that [EPA] has misconstrued the meaning of” the sub-sim law “is the plain language of a nearby provision, section 211(c)(1).”¹⁷ That provision of the Act sets out the criteria that EPA is required to consider before “controlling or prohibiting the sale of fuel additives.”¹⁸

Under section 211(c)(1), before controlling existing fuel additives, EPA must find that a fuel or additive (1) “causes, or contribute to, air pollution which may reasonably be anticipated to endanger the public health or welfare” or (2) causes “emissions products” that “impair to a significant degree the performance of any emission control device or system which is [or would soon be] in general use.”¹⁹

Recognizing that regulatory controls on existing fuel additives can be disruptive, Congress limited EPA’s discretion in subparagraph 211(c)(2)(A) to the control of fuels and additives that “may reasonably be anticipated to endanger the public health,” and required the Agency to consider all relevant “medical and scientific evidence . . . including . . . other feasible means of achieving the emission standards” required by the Act.²⁰ As the D.C. Circuit has explained, this provision requires EPA to consider whether the evidence shows that a fuel or fuel additive would “significantly increase the total human exposure” to pollution “so as to cause a significant risk of harm to human health.”²¹ EPA has no “power to act on hunches and wild guesses.”²²

In an adjacent provision, subparagraph 211(c)(2)(B), Congress similarly limited EPA’s discretion to prevent damage to vehicle emissions controls by requiring the Agency to consider “scientific and economic data, including a cost benefit analysis comparing” feasible regulatory alternatives, and to hold “public hearing[s] and publish findings” upon request.²³ Together, these requirements “establish[] a rebuttable presumption that the Agency should maintain a

¹⁶ *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 125 (2001).

¹⁷ *Ethyl Corp. v. EPA*, 51 F.3d 1053, 1061 (D.C. Cir. 1995) (citing 42 U.S.C. 7545(c)).

¹⁸ *Id.*

¹⁹ 42 U.S.C. § 7545(c)(1).

²⁰ *Id.* § 7545(c)(2)(A).

²¹ *Ethyl Corp. v. EPA*, 541 F.2d 1, 32 (1976).

²² *Ethyl Corp.*, 541 F.2d at 28. A determination of significant risk requires an examination of the “probability and severity” of the risk being regulated. *Id.* at 18.

²³ 42 U.S.C. § 7545(c)(2)(B).

laissez faire posture with regard to fuel regulation.”²⁴ EPA must show “why regulation, as opposed to no regulation, is necessary or otherwise advisable.”²⁵

Considered together, the detailed provisions of section 211(c) “demonstrate[] that Congress crafted a very definite scheme in which [EPA] was to consider certain criteria before . . . prohibiting or controlling the manufacture or sale of fuel additives.”²⁶

The D.C. Circuit has rejected EPA’s prior attempt to circumvent this “very definite scheme.”²⁷ In *Ethyl Corp. v. EPA*, the Court rejected EPA’s attempt to deny a sub-sim waiver for a fuel additive under 211(f)(4) because of “concern about the effects on public health that could result if EPA were to” grant such a waiver.²⁸ In rejecting EPA’s claim that it could use section 211(f) to regulate fuels “in the public interest,” the Court observed that the detailed scheme of regulation established by section 211(c) demonstrated that “Congress did not delegate to the Agency the authority to consider other factors ‘in the public interest’ such as public health when acting under section 211(f)(4).”²⁹

As in *Ethyl*, the Proposed Rule’s reliance on section 211(f) to regulate the concentration of ethanol in gasoline under a standard of its own making “operates in complete defiance of the plain terms of the statutory criterion and with no explanation whatsoever for the application of a different standard.”³⁰ If EPA wishes to control the concentration of ethanol in gasoline, it “may initiate proceedings under section 211(c)(1).”³¹

The Proposed REGS Rule Would Shift EPA’s Burden to Fuel Manufacturers.

The implications of EPA’s subversion of the Clean Air Act’s fuel regulation scheme are significant. Under section 211(c), it is EPA who bears the burden of finding that a fuel additive will “cause[], or contribute[], to air pollution” that will either “impair . . . any emission control device” or “endanger the public health or welfare.”³² By misconstruing section 211(f) to control fuel additive concentration, EPA unlawfully shifts its burden to fuel manufacturers who, to get a sub-sim waiver, must “establish” that the requested concentration “will not cause or contribute to a failure of any emission control device.”³³

²⁴ *Amoco Oil Co. v. EPA*, 501 F.2d 722, 736 (D.C. Cir. 1974).

²⁵ *Id.*

²⁶ *Ethyl Corp.*, 51 F.3d at 1061.

²⁷ *Ethyl Corp.*, 51 F.3d at 1061.

²⁸ *Id.* at 1057.

²⁹ *Id.* at 1061.

³⁰ *Id.* at 1063.

³¹ *Id.* at 1064.

³² 42 U.S.C. § 7545(c)(1).

³³ *Id.* § 7545(f)(4).

EPA should correct its interpretation and recognize that the sub-sim law does not limit the concentration of ethanol in gasoline. This would remove an unnecessary regulatory barrier to the penetration of higher ethanol blends, and it would preserve EPA's authority to promulgate any appropriate fuel controls under section 211(c).

Appendix C

Reforming EPA's Limit on Ethanol's One-Pound RVP Waiver

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May 15, 2017

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Re: EPA's Arbitrary RVP Regulation Limits the Viability of Midlevel Ethanol Blends

Although E15 was granted a waiver under EPA's interpretation of the sub-sim law,¹ President Obama's EPA arbitrarily limited the times of year in which it may be used, artificially suppressing the market for E15. The result is that most drivers today have no access to E15, even though, for several years, E15 has been approved for use in Model Year 2001 and newer vehicles.²

To control fuel volatility, the Clean Air Act prohibits the sale of "gasoline with a Reid Vapor Pressure of 9 pounds per square inch (psi)."³ But recognizing that this standard would impose a burden on gasoline containing 10% ethanol or more, Congress allowed a 1 psi waiver "[f]or fuel blends containing gasoline and 10 percent denatured anhydrous ethanol."⁴

The Obama EPA interpreted that waiver provision to exclude blends with more than 10% ethanol, insisting that "a 1 psi RVP waiver was granted by Congress in 1990 to gasoline-ethanol blends of a least 9 volume percent *and no greater than* 10 volume percent ethanol."⁵ But Congress did not limit the waiver to E10 fuels. Congress granted the 1 psi RVP waiver to "fuel blends containing gasoline and 10 percent denatured anhydrous ethanol."⁶ And E15 fuel blends contain gasoline and 10 percent denatured anhydrous ethanol.

¹ Partial Grant of Clean Air Act Waiver Application Submitted by Growth Energy to Increase the Allowable Ethanol Content of Gasoline to 15 Percent, 76 Fed. Reg. 4662 (Jan. 26, 2011) (hereinafter E15 Partial Waiver).

² *Id.* at 4682.

³ 42 U.S.C. § 7545(h)(1) (emphasis added). Reid Vapor Pressure, or RVP, "is a standard measure of fuel volatility at 100°F." *Renewables Enhancement and Growth Support Rule*, 81 Fed. Reg. 80828, 80851 (Nov. 16, 2016) (hereinafter REGS Rule). "Volatility is a measure of the propensity of a liquid to evaporate." *Id.*

⁴ 42 U.S.C. § 7545(h)(4).

⁵ REGS Rule, 81 Fed. Reg. at 80851 n.95 (emphasis added); E15 Partial Waiver, 76 Fed. Reg. at 4675. EPA currently restricts the 1 psi waiver exemption to fuels with an ethanol content of "at least 9% and no more than 10% (by volume) of the gasoline." 40 C.F.R. § 80.27(d)(2). EPA did not limit the 1 psi waiver to E10 until 2002, more than a decade after the statute was enacted. See *Regulation of Fuel and Fuel Additives: Reformulated Gasoline Transition*, 67 Fed. Reg. 8729, 8736 (Feb. 26, 2002).

⁶ 42 U.S.C. § 7545(h)(4).

The Obama EPA's needlessly restrictive interpretation of the waiver provision is "unmoored from the purposes and concerns" of the Clean Air Act.⁷ As shown in Figure 1 and acknowledged by EPA, "the addition of ethanol to gasoline" above 10% ethanol "decreases blend volatility."⁸ By restricting the 1 psi waiver to gasoline with no more than 10% ethanol, EPA's interpretation discourages the sale of a fuel with a lower volatility, undermining the objectives the RVP control program and increasing pollution.⁹

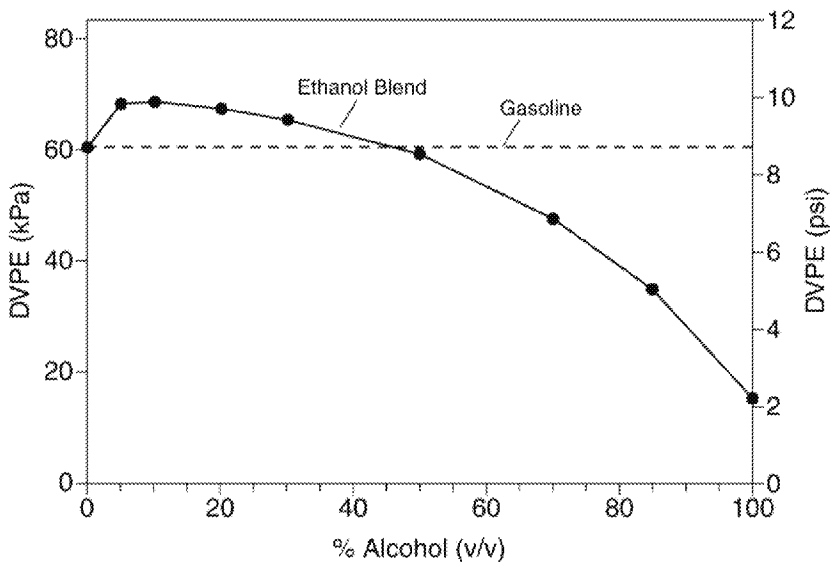


Figure 1. Source: Memorandum from Robert L. McCormick, NREL, to Kristy Moore, Renewable Fuels Association (Mar. 26, 2012), <http://bit.ly/2oGf3QH>.

EPA's needless interpretation also has serious deleterious consequences for small business owners. Every summer (the period of greatest gasoline demand) nearly a thousand retailers must stop selling E15 due to EPA's interpretation.¹⁰ Small business owners have repeatedly testified before EPA about the real world burdens imposed by this interpretation. As the owner of convenience store in Nevada, Iowa, recently explained:

"The only problem I have with the E15 comes every June 1st. On that day, I need to restrict the sales of E15 to flex fuel vehicles only. And on that day, I begin trying to explain to my customers the complex regulations that make the fuel that they buy one day off limits the next day. They are frustrated and I am frustrated. And let me tell you, when summer driving season starts, my E15 sales drop like a rock."¹¹

⁷ *Judulang v. Holder*, 565 U.S. 42, 64 (2011).

⁸ REGS Rule, 81 Fed. Reg. at 80851.

⁹ Congress enacted the waiver to ensure the continued "beneficial environmental, economic, agricultural, energy security, and foreign policy implications" of "ethanol blending." S. Rep. No. 100-231, at 147-50 (1987), 1990 CAA Leg. Hist. 9436, 9585-89.

¹⁰ EPA, Transcript of Public Hearing, Renewables Enhancement and Growth Support Rule at 25:7-9 (Dec. 6, 2016).

¹¹ *Id.* at 28:15-22, 29:16.

Instead of acting on the pleas of small business owners, EPA officials in the Obama Administration repeatedly stated that this is “a difficult thing for us to sort through and work through.”¹² But an interpretation that is not required by statute, produces no discernible environmental benefit, and harms small business owners should not be that difficult to sort out.

EPA should revoke its interpretation of the 1 psi RVP waiver provision and affirm that the statutory waiver extends to all gasoline containing *at least* 10% ethanol.

¹² *Id.* at 32:2–3.

Appendix D

Reforming EPA's Erroneous Fuel Economy Calculation

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May 15, 2017

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Re: EPA Should Correct Its Erroneous Fuel Economy Formula to Comply with the Law
and Reduce Regulatory Burdens

EPA has admitted that part of its fuel economy formula is erroneous and that it unfairly penalizes gasoline-ethanol blends, contrary to statutory requirements. This is an important consideration for automakers that face increasingly stringent fuel economy standards.

Under the Corporate Average Fuel Economy (CAFE) program, EPA calculates vehicle fuel economy in two steps.¹ EPA first measures the amount of carbon in the test fuel and in the exhaust emissions.² Then, using a complex fuel economy equation, EPA derives the fuel economy value.³

The current fuel economy equation includes adjustments meant to control for changes in the test fuel that affect fuel economy. These adjustments implement EPA's statutory obligation to make fuel economy testing on today's fuel comparable to fuel economy testing in 1975 by adjusting for changes in the test fuel that affect fuel economy.⁴ This statutory requirement is intended to prevent EPA from changing the stringency of the CAFE standards through surreptitious changes in the test fuel, thereby ensuring that substantive changes in the CAFE standards happen in an accountable and transparent way.⁵ EPA's current fuel economy equation fails to accurately adjust for changes in the test fuel, as required by law.

¹ Aron Butler et al., Analysis of the Effects of Changing Fuel Properties on the EPA Fuel Economy Equation and R-Factor, at 1, Memorandum to the Tier 3 Docket, EPA-HQ-OAR-2011-0135 (Feb. 28, 2013).

² 40 C.F.R. § 600.113-12(f)(1).

³ *Id.* § 600.113-12(h)(1) $((5174 \times 10^4 \times \text{CWF} \times \text{SG}) / [((\text{CWF} \times \text{HC}) + (0.429 \times \text{CO}) + (0.273 \times \text{CO}_2)) \times ((0.6 \times \text{SG} \times \text{NHV}) + 5471)])$; *see also id.* Pt. 600, App. II (sample fuel economy calculations).

⁴ 26 U.S.C. § 4064(c) ("Fuel economy . . . shall be measured in accordance with testing and calculation procedures . . . utilized by the EPA Administrator for model year 1975 . . . or procedures which yield comparable results."); 49 U.S.C. § 32904(c) ("[T]he Administrator shall use the same procedures for passenger automobiles the Administrator used for model year 1975 . . . or procedures that give comparable results."); *see also General Motors Corp. v. Costle*, Nos. 80-3271, 80-3272, & 80-3655 (6th Cir. 1982) (Mem.) (requiring EPA to initiate a rulemaking that would establish an "adjustment factor" reconciling current test procedures with previous ones).

⁵ *Ctr. for Auto Safety v. Thomas*, 847 F.2d 843, 846 (D.C. Cir.) (en banc) (Wald, C.J., concurring), *reh'g granted and opinion vacated on other grounds*, 856 F.2d 1557 (D.C. Cir. 1988) (per curiam) ("By inserting the comparability requirement, Congress meant to insure that auto manufacturers be credited only with real fuel economy gains, not illusory gains generated by changes in test procedures.").

The current fuel economy equation includes an adjustment to account for changes in the test fuel's energy content.⁶ Such an adjustment is necessary because energy content affects fuel economy: In general, a fuel with a higher energy content increases volumetric fuel economy, whereas a fuel with a lower energy content reduces volumetric fuel economy.⁷ Thus, unless the equation accurately adjusts for changes in the energy content of the test fuel, fuel economy calculations for test fuels with a lower energy content (like the new E10 gasoline certification fuel) would reflect illusory losses in fuel economy.

EPA's current fuel economy equation creates such an illusion. The source of this error is a sensitivity measure known as the R-factor. The R-factor is a measure of "how vehicles respond to changes in the energy content of the fuel."⁸ The current R-factor of 0.6, for example, implies that a 10% change in the test fuel's energy content causes only a 6% change in vehicle fuel economy.⁹

The current R-factor is based on outdated vehicle data from the 1980s.¹⁰ Many studies since then have shown that a higher R-factor is required to accurately measure changes in fuel economy.¹¹ EPA itself has acknowledged that the current R-factor is wrong and suggested a corrected value might lie "between 0.8 and 0.9."¹² The auto industry has asked EPA to adopt an R-factor of 1.0.¹³

EPA has repeatedly promised to fix the R-factor, but it has never done so. In 2012, EPA assured automakers that it would fix the R-factor "in a timely manner" when it changed the test fuel.¹⁴ In 2014, EPA updated its test fuel to reflect in-use gasoline with 10 percent

⁶ Proposed Tier 3 Rule, 78 Fed. Reg. at 29913 ("[T]he existing fuel economy equation for gasoline . . . contains an adjustment for the energy content of the test fuel to calculate fuel economy equivalent to what would have been determined using the 1975 baseline test fuel.").

⁷ See *id.* ("Because ethanol has a lower energy content than gasoline, i.e., fewer British thermal units (Btus) or joules per gallon, and fuel economy is defined in terms of miles per gallon of fuel, it is almost certain that the same vehicle tested on a test fuel with 15 percent ethanol content will yield a lower fuel economy value relative to the value if it were tested on the current test fuel with zero ethanol content.").

⁸ Tier 3 Rule, 79 Fed. Reg. at 23531.

⁹ *Id.* (stating that the R-factor's "value is presently set at 0.6"); Proposed Tier 3 Rule, 78 Fed. Reg. at 29913 (stating that the R-factor "account[s] for the fact that the change in fuel economy is not directly proportional to the change in energy content of the test fuel.").

¹⁰ Butler et al., *supra* note 1, at 3 (citing 1985 studies).

¹¹ *Id.* at 3.

¹² *Id.* at 4–5.

¹³ Tier 3 Rule, 79 Fed. Reg. at 23531 ("[T]he manufacturers commented that . . . EPA should finalize an appropriate test procedure adjustment in the Tier 3 rulemaking, including adoption of an 'R' factor of 1.0.").

¹⁴ 2012 CAFE/GHG Rule, 77 Fed. Reg. at 62777–78 ("If the certification test fuel is changed to include ethanol through a future rulemaking, EPA would be required under EPCA to address the need for a test procedure adjustment to preserve the level of stringency of the CAFE standards. EPA is committed to doing so in

ethanol,¹⁵ but it refused to change the R-factor.¹⁶ Instead, EPA kicked the can down the road, requiring automakers to use the outdated test fuel for fuel economy testing until at least 2020.¹⁷

EPA should finalize an R-factor of 1. This would allow automakers to use the new test fuel for CAFE compliance purposes without being unfairly penalized for using a test fuel with a lower energy content.¹⁸

More fundamentally, the current fuel economy formula fails to account for the reduction in petroleum consumption that is achieved by the ethanol portion of gasoline. Under the Energy Independence and Security Act of 2007 (EISA), EPA has authority to promote energy independence by “decid[ing] on the quantity of other fuel that is equivalent to one gallon of gasoline.”¹⁹

EPA has used this discretion to credit alternative fuels with the potential to reduce petroleum consumption.²⁰ EPA currently applies a “petroleum equivalency factor” to adjust the fuel economy of alternative fuel vehicles, including electric and flex-fuel vehicles.²¹ For flex-fuel vehicles, EPA applies a petroleum equivalency factor of 0.15 (a rough measure of the amount of gasoline present in E85).²²

a timely manner to ensure that any change in certification fuel will not affect the stringency of future GHG emission standards.”).

¹⁵ 40 C.F.R. § 86.113-15; 40 C.F.R. § 1065.710.

¹⁶ Tier 3 Rule, 79 Fed. Reg. at 23531 (“While there has been some data evaluated to assess the impact of changing the emission test fuel on the ‘R’ factor, EPA did not propose a value in the NPRM and specifically stated that we would continue to investigate this issue and if necessary address it as part of a future action, as opposed to changing it in the Tier 3 final rule.”); *id.* at 23532 (stating that current studies “will provide data need to assess the ‘R’ value” and stating that “EPA expects to have the needed data in early to mid 2015 and will then be in a position to conduct a thorough assessment of the impacts of different emission test fuels on Tier 3/LEV III vehicles and develop any appropriate adjustments and changes, in consultation and coordination with NHTSA.”).

¹⁷ 40 C.F.R. § 600.117(a).

¹⁸ The error of the current R-factor and the necessary correction to the fuel economy equation is explained in detail in comments filed by Boyden Gray & Associates. Energy Future Coalition & Urban Air Initiative, Comments on Proposed Tier 3 Rule, EPA-HQ-OAR-2011-0135-4353 (July 1, 2013), at 41-43 & Appendix I, *available at* <http://boydengrayassociates.com/comments-of-the-energy-future-coalition-and-urban-air-initiative-on-proposed-tier-3-motor-vehicle-emission-and-fuel-standards-july-1-2013/>.

¹⁹ 49 U.S.C. § 32904(c).

²⁰ Response to Comments on the 2012 CAFE Rule, at 6-164.

²¹ 10 C.F.R. § 474.3 (electric vehicles); 40 C.F.R. § 600.510-12(v) (alcohol dual-fueled vehicles).

²² 49 U.S.C. § 32905(a)–(b).

Under this authority, EPA should determine that 1.11 gallons of E10 “is equivalent to one gallon of gasoline” (because E10 actually contains 90% gasoline).²³ EPA could also catalyze the development of vehicles dedicated to operate on high-octane, midlevel ethanol blends by extending a comparable petroleum equivalency factor for vehicles designed to operate on such blends. For example, if in the future manufacturers can certify vehicles on an alternative certification fuel containing 25% ethanol, EPA could decide that 1.33 gallons of E25 “is equivalent to one gallon of gasoline” (because E25 contains only 75% gasoline).²⁴ This would be consistent with EISA and with the Administration’s goal of promoting energy independence and reducing regulatory burdens.²⁵

²³ To illustrate, a vehicle that receives a fuel economy rating of 25 mpg on the E10 test fuel would receive a fuel economy rating of 27.8 mpg after the petroleum equivalency factor is taken into account ($25/0.90 = 27.8$).

²⁴ To illustrate, a dedicated vehicle that receives a fuel economy rating of 25 mpg on the E25 test fuel would receive a fuel economy rating of 33.3 mpg after the petroleum equivalency factor is taken into account ($25/0.75 = 33.3$).

²⁵ Exec. Order No. 13783, 82 Fed. Reg. 16093 (Mar. 28, 2017) (energy independence); Exec. Order No. 13,771 82 Fed. Reg. 9,339 (Jan. 30, 2017) (regulatory burdens).

Appendix E

Reforming EPA's MOVES2014a Emissions Model

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May 15, 2017

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Re: EPA Should Correct the MOVES2014 Model's Anti-Ethanol Bias

The MOVES model, developed by EPA's Office of Transportation and Air Quality (OTAQ), estimates emissions for mobile sources at the national, county, and project level for criteria pollutants, greenhouse gases, and air toxics. MOVES2014 is the latest major revision of EPA's vehicular emissions model. It is profoundly biased against ethanol and it must be repealed and replaced with a corrected model.

EPA Imposed MOVES2014 on the States without Notice in Violation of the APA.

EPA imposed the MOVES2014 model on the States in a binding rule without notice and an opportunity for comment as required by the Administrative Procedure Act.¹ States were required to immediately begin using MOVES2014 in developing their State Implementation Plans (SIPs) for compliance with the National Ambient Air Quality Standards (NAAQS). Until it issued MOVES2014, EPA had promulgated all major revisions of its vehicular emissions model following notice and comment.

The States of Kansas and Nebraska challenged EPA's release of MOVES2014 in the D.C. Circuit, but they did not have standing because they were not yet in nonattainment with a NAAQS.² States will have standing to challenge MOVES2014 if EPA finalizes nonattainment designations under the new air quality standard for ozone.

In addition to the procedural deficiencies of EPA's promulgation of MOVES2014, the model is substantively flawed.

The MOVES2014 Model's Tailpipe Emissions Factors Are Flawed.

MOVES2014's tailpipe emissions factors are derived from the results of the "EPAAct study," an ambitious but misguided analysis of the emissions effects of five fuel parameters (ethanol content, aromatics content, Reid Vapor Pressure (RVP), T50, and T90) based on 15 vehicles and 27 test fuels including so-called straight gasoline (E0) and blends of gasoline with 10%, 15%, and 20% ethanol (E10, E15, and E20).

¹ Official Release of the MOVES2014 Motor Vehicle Emissions Model for SIPs and Transportation Conformity, 79 Fed. Reg. 60343, 60344 (Oct. 7, 2014) (hereinafter Official Release of MOVES2014).

² *Kansas v. EPA*, 638 Fed. App'x 11 (D.C. Cir. 2016).

EPA conducted the EPAAct study with the assistance of Southwest Research Institute (SwRI) and the Coordinating Research Council (CRC), a non-profit organization supported by the American Petroleum Institute,³ and petroleum industry employees.⁴ Contrary to EPA's own requirements of "objectivity" and "unbiased" information,⁵ EPA did not solicit input from biofuel producers or other affected entities outside the oil industry.

EPA could have modeled ethanol's emissions effects by simply adding ethanol to commercial gasoline blendstocks ("splash blending"), or mimicking real-world refinery practices. Instead, the EPAAct study's designers created novel fuels through an arbitrary "match blending" process in which they first adjusted the gasoline blendstock to hold constant selected parameters, including T50 and T90—the "distillation temperatures" at which 50% and 90% of the contents of the fuel are vaporized—even though refineries operate under no such constraints. To match the T50 and T90 of fuels with varying ethanol concentrations, high distillate aromatic and saturated hydrocarbons were added to fuels with higher ethanol content to counteract ethanol's beneficial effect of lowering T50 and T90.

But there is no good reason in science, engineering, or law to hold T50 and T90 constant when testing different levels of ethanol. Any semblance of uniformity among the test fuels is illusory, for the distillation profiles of blended fuels are not straight lines. The resulting test fuels deviated significantly from one another and from fuels available in the market—with some test fuels, for example, exceeding legal limits on driveability (a measure of cold-start and warm-up performance) and others containing unrealistically high octane ratings, thanks to the addition of costly and harmful high-distillate hydrocarbons.

The result of this "match blending" was the EPAAct study's conclusion that "other factors being equal, increasing ethanol is associated with an increase in emissions."⁶ This conclusion is misleading at best, because other factors are never equal in the real world.⁷ There is no regulatory, mechanical, or health justification for adding high-boiling-point hydrocarbons to

³ In 2009, the CRC certified that it was "organized and operated exclusively for the benefit of, to perform the functions of, or to carry out the purposes" of the American Petroleum Institute. Return of Organization Exempt from Income Tax 2009, <http://bit.ly/2dVu5b8>. CRC's board of directors included several oil company employees. See CRC, Annual Report 80 (2009), available at <http://bit.ly/2fwTjrw>.

⁴ Affiliated oil companies include BP, Chevron, ExxonMobil, Aramco, Marathon Petroleum, and Shell. See CRC, CRC Organizational Overview 5 (June 22, 2015), <http://bit.ly/1T2nlfD>.

⁵ EPA, Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency 15 (Oct. 2002) (hereinafter Information Quality Guidelines), available at http://www.epa.gov/QUALITY/informationguidelines/documents/EPA_InfoQualityGuidelines.pdf.

⁶ *Id.* at 7.

⁷ See Anderson et al., *Issues with T50 and T90 as Match Criteria for Ethanol-Gasoline Blends*, 7 SAE Int'l J. Fuels & Lubr. 1027, 1034 (2014) ("[O]ther factors are not equal when ethanol is added to gasoline. Depending on the blendstock, the added ethanol reduces T50 due to near-azeotropic behavior and reduces T90 and aromatics content by dilution. Considered as a whole, these factors tend to reduce emissions with increasing ethanol.").

test fuels for the purpose of measuring ethanol's effect on tailpipe emissions.⁸ And that is the only way to account for the EPA's study's results: ethanol has been shown in numerous empirical studies to *decrease* emissions.

Even when one accounts for the other four fuel parameters (aromatics, T50, T90, and RVP), it is impossible to derive accurate results from the EPA's study. The study fails to control for differences in the full range of the test fuels' distillation temperatures (other than T50 and T90). Because of ethanol's non-linear effect on gasoline distillation, raising the T50 of higher ethanol blends to *match* the T50 of E0 and E10 blends results in elevated T60-80 distillation temperatures. This skewed the results of the higher ethanol fuels, because those high upper distillation temperatures impede complete combustion, producing pollution. And whenever more heat is required to vaporize fuel components, more emissions result. The EPA's study also fails to account for differences in the speciation of the test fuels' hydrocarbon content. The high-distillate hydrocarbons used to raise T50 and T90 have the greatest effect on emissions, but for purposes of its match blending methodology, the EPA's study treats all aromatics alike. EPA's neglect of these confounding variables undermines the integrity of the results.

The MOVES2014 Models' Evaporative Emissions Factors are Flawed.

MOVES2014 includes inaccurate evaporative emissions factors based on four flawed oil-funded studies. The model's "fuel adjustment" for ethanol predicts that blending any amount of ethanol into gasoline (E5 through E85) more than doubles permeation emissions⁹—a subset of evaporative emissions that contribute significantly to the total modeled emissions of VOCs. Specifically, the model predicts that ethanol raises permeation rates 113.8% in model year 2001 and newer vehicles, and 107.3% for model years 1997 to 2000.¹⁰

EPA developed this fuel adjustment factor for ethanol using data from four CRC studies funded by the oil industry.¹¹ All four studies are systematically biased against ethanol because

⁸ *Id.* at 1030 ("[Blendstock] modifications should generally not be needed to control these parameters in studies evaluating the effects of ethanol content on emissions if starting with an E10 fuel or using an E10 intended [blendstock].").

⁹ EPA, *Evaporative Emissions from On-road Vehicles in MOVES2014*, EPA-420-R-14-014, at 13 (Sept. 2014). "Permeation emissions are specific hydrocarbon compounds that escape through micro-pores in pipes, fittings, fuel tanks, and other vehicle components (typically made of plastic or rubber)." *Id.* at 15.

¹⁰ EPA, *Evaporative Emissions from On-road Vehicles in MOVES2014*, EPA-420-R-14-014, at 16 (Sept. 2014).

¹¹ EPA, *MOVES2010, Development of Evaporative Emissions Calculations for the Motor Vehicle Emissions Simulator MOVES2010*, Final Report, at 10 (Sept. 2012) (citing Harold M. Haskew et al., *Fuel Permeation from Automotive Systems*, CRC Project No. E-65 (2004); Harold M. Haskew et al., *Fuel Permeation from Automotive Systems: E0, E6, E10, E20, and E85*, Final Report, CRC Project No. E-65-3 (2006); Harold M. Haskew et al., *Enhanced Evaporative Emissions Vehicles*, CRC Project No. E-77-2 (2010); Harold M. Haskew et al., *Evaporative Emissions from In-Use Vehicles: Test Fleet Expansion*, CRC Project No. E-77-2b, Final Report, EPA-420-R-10-025 (2010)).

they include ethanol test fuels with artificially elevated volumes of aromatics and other fuel components that contribute to permeation emissions. In particular, the ethanol test fuels in CRC studies E-65-3, E-77-2, and E-77-2b consistently have higher volumes of aromatics and a significantly higher BTEX content than non-ethanol fuels, contrary to market trends.¹² This introduces a significant systematic bias against ethanol in these studies, because “permeation increases exponentially with fuel aromatic content” and BTEX in particular.¹³

The four CRC studies are also biased against ethanol for the related reason that they fail to control for confounding variables. With the occasional exception of RVP, the CRC studies focus systematically on the effect of a single factor (ethanol), without adequately testing other fuel properties (or interactions of multiple properties) that are known to increase permeation emissions. For instance, highly volatile aromatics, like benzene,¹⁴ and smaller molecular-size paraffins, like pentane, can contribute significantly to permeation.¹⁵ Because the CRC studies focus on ethanol without controlling for other significant factors and aberrant vehicle data, the CRC studies confound the effect of ethanol content with the effects of other fuel or vehicle properties.

And, as CRC itself has reported, EPA’s ethanol fuel adjustment factor is not even consistent with the studies’ results. CRC itself recently concluded that MOVES2014 “significantly over-estimate[s] permeation” from model year 2004 and newer vehicles,¹⁶ in part because the same CRC studies EPA relied on show that newer vehicles are “less sensitive to the increase in permeation due to ethanol” than EPA assumed.¹⁷

The MOVES2014 Model’s Default Fuel Parameters Are Inconsistent with Market Fuel.

Even if the model itself were accurate, it would produce inaccurate results because of the models’ mandatory inputs. States are at the mercy of MOVES2014’s default fuel parameters.¹⁸

¹² See, e.g., Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards Final Rule: Regulatory Impact Analysis, at 3-3 (Mar. 2014).

¹³ Sam R. Reddy, *Understanding Fuel Effects on Hydrocarbon Permeation through Vehicle Fuel System Maters*, SAE Technical Paper 2007-01-4089, at 1.

¹⁴ Dan D. Koo, *Modified Permeation Coefficients for Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) Estimation through Polyethylene Pipe*, 5 Int’l J. of Emerging Tech. & Advanced Engineering 430–31 (Apr. 2014).

¹⁵ Reddy, *supra* note 13, at 5.

¹⁶ Sierra Research, *Review of EPA’s MOVES2014 Model*, CRC Project No. E-101, at 34 (Aug. 11, 2016) (hereinafter CRC E-101). CRC found that the MOVES2014 permeation rates “omit key recent test data and significantly over-estimate permeation from Tier 2 certified vehicles (i.e., near-zero standards),” *id.* at 32; see *id.* at 34 (“Both the base [permeation] rate and the ethanol increment are less, and the net impact would be significantly reduced permeation emissions from the current fleet commencing with the model 2004 year.”).

¹⁷ *Id.* at 32.

¹⁸ EPA’s guidance allows substitution of the State’s own parameters only “where precise local volumetric fuel property information is available.” EPA, MOVES2014 and MOVES2014a Technical Guidance: Using

But the defaults are inconsistent with known data about the fuel actually sold throughout the country. As Department of Transportation scientists concluded, the default fuel parameters “likely do not have the same attributes” as real-world fuels.¹⁹

EPA Should Correct the MOVES2014 Model.

Because the EPAct study and MOVES2014 model fall short of EPA’s information quality standards, the States of Kansas and Nebraska, the Energy Future Coalition, and Urban Air Initiative jointly filed a Request for Correction of Information under EPA’s Information Quality Guidelines.²⁰ EPA has committed to respond by May 25, 2017.

EPA should withdraw the EPAct study and lock the MOVES2014 model’s ethanol variable at 10% to prevent false comparisons between fuels with different levels of ethanol.

EPA should then develop a replacement model with corrected emissions factors based on an objective, accurate, and unbiased fuel effects study, following a meaningful opportunity for public comment. This could occur in conjunction with the “FACA MOVES Review Work Group” that EPA established in 2016 to evaluate MOVES2014 and provide advice to EPA as it produces a new emissions model as early as 2018.²¹

Urban Air Initiative has requested an opportunity to present the substance of its Request for Correction to the Work Group, but EPA has not yet responded to that request.

MOVES to Prepare Emission Inventories for State Implementation Plans and Transportation Conformity 45, ¶ 4.9.1 (Nov. 2015).

¹⁹ Roger L. Wayson et al., Evaluation of Ethanol Fuel Blends in EPA MOVES2014 Model 10 (Jan. 2016), *available at* <http://bit.ly/1Q3L4u9>.

²⁰ See State of Kansas et al., Request for Correction re EPAct/V2/E-89 Fuel Effects Study and Motor Vehicle Emissions Simulator Model (MOVES2014), RFC 17001 (Jan. 19, 2017), *available at* https://www.epa.gov/sites/production/files/2017-02/documents/epact_-_fuel_effects_study_rfc_17001.pdf.

²¹ Although the FACA MOVES Review Work Group is a committee for purposes of the Federal Advisory Committee Act, it has not followed the requirements of that Act.

Message

From: Gunasekara, Mandy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=53D1A3CAA8BB4EBAB8A2D28CA59B6F45-GUNASEKARA,]
Sent: 5/31/2017 2:48:43 PM
To: Andrew Varcoe [avarcoe@boydengrayassociates.com]
Subject: RE: RVP

Ok – phew!

From: Andrew Varcoe [mailto:avarcoe@boydengrayassociates.com]
Sent: Wednesday, May 31, 2017 10:45 AM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: RE: RVP

No need to apologize; you were right – Adam G was the sender (and the author of the memo). I was impressed by the late night emailing, which I am guilty of from time to time.

Andy

From: Gunasekara, Mandy [mailto:Gunasekara.Mandy@epa.gov]
Sent: Wednesday, May 31, 2017 10:43 AM
To: Andrew Varcoe <avarcoe@boydengrayassociates.com>
Subject: RE: RVP

Sorry, sorry ,sorry – I meant Andrew! That’s what I get for late night emailing.

From: Andrew Varcoe [mailto:avarcoe@boydengrayassociates.com]
Sent: Wednesday, May 31, 2017 10:38 AM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: RE: RVP

Thank you!

Andrew R. Varcoe
Partner
Boyden Gray & Associates
801 17th Street NW, Suite 350
Washington, DC 20006
202.706.5488 (o), **Ex. 6** (m), 202.955.0621 (f)
avarcoe@boydengrayassociates.com

From: Gunasekara, Mandy [mailto:Gunasekara.Mandy@epa.gov]
Sent: Tuesday, May 30, 2017 11:24 PM
To: Adam Gustafson <gustafson@boydengrayassociates.com>
Cc: Andrew Varcoe <avarcoe@boydengrayassociates.com>; James Conde <conde@boydengrayassociates.com>
Subject: Re: RVP

Thank you, Adam. I appreciate the time you've put into this. I just forwarded it to the rest of our team and asked the program and OGC folks to use it to develop options/response.

I'll be in touch to discuss further.

Best,
Mandy

Sent from my iPhone

On May 30, 2017, at 11:11 PM, Adam Gustafson <gustafson@boydengrayassociates.com> wrote:

Mandy,

Thank you for the opportunity to meet with you and your colleagues last week to discuss EPA's legal authority to extend the 1 psi RVP waiver to E15. Here is our promised memo explaining why the various solutions we discussed are tools in EPA's regulatory toolbox.

We would welcome another conversation whenever that would be useful.

Adam

Adam R.F. Gustafson
Partner | **BOYDEN GRAY & ASSOCIATES**
801 17th Street NW, Suite 350
Washington, DC 20006
Cell: **Ex. 6**
Fax: 202-955-0621
gustafson@boydengrayassociates.com

<RVP Waiver Memo 20170530e.pdf>

Message

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 12/7/2018 4:46:56 PM
To: Schwab, Justin [Schwab.Justin@epa.gov]
Subject: Re: Meeting Request: RVP
Attachments: RVP Waiver Memo 20181207.pdf; RVP Waiver Memo 20181207.pdf

Justin,

Here are the two memos I mentioned.

The first is a preliminary assessment of the legal strategy that I understand EPA may currently be exploring. I might have some of the details wrong, because I have only heard about EPA's approach second-hand.

The second memo outlines our preferred approach to the RVP rulemaking and explains why EPA must reconsider its past regulation of ethanol concentration under CAA 211(f) now that ethanol is a "fuel additive utilized in . . . certification." You may have seen an earlier version of this.

Here's my availability for the next two weeks:

Dec. 11, 5pm-7pm
Dec. 12, 10am-5:30pm
Dec. 13, 8am-12pm, 2pm-7pm
Dec. 14, 8am-1:30pm,
Dec. 18, 11:30am-7pm
Dec. 19 – morning is possible (may be unavailable)
Dec. 20 – afternoon is possible (may be unavailable)

Stay healthy!

Adam

From: Adam Gustafson <gustafson@boydengrayassociates.com>
Date: Thursday, December 6, 2018 at 2:33 PM
To: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>, "Schwab, Justin" <Schwab.Justin@epa.gov>, "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>
Cc: "Dominguez, Alexander" <dominguez.alexander@epa.gov>
Subject: Meeting Request: RVP

Dear Mandy, Justin, and Ben,

I'm writing to request a meeting about the forthcoming RVP/E15 rule proposal. We have some concerns about the legal vulnerability of the strategy we understand EPA may be pursuing. We would appreciate an opportunity

to talk through that and suggest a multipronged approach that would minimize litigation risk. Are you available December 7, 12, 13, or 18?

I look forward to catching up.

Adam

BOYDEN GRAY & ASSOCIATES PLLC
801 17TH STREET, NW, SUITE 350
WASHINGTON, DC 20006
(202) 955-0620

December 7, 2018

To: Justin Schwab, Deputy General Counsel, Environmental Protection Agency

From: Adam Gustafson; James Conde

Re: EPA's Authority To Extend the 1 psi RVP Waiver to Midlevel Ethanol Blends

Most drivers have no access to E15—a cleaner, more cost-effective, and higher octane fuel than the E10 that prevails in the market today—even though E15 has been a legal fuel for several years. In 2011, EPA approved E15 for use in Model Year 2001 and newer vehicles under a waiver pursuant to the “sub-sim” law, section 211(f)(4) of the Clean Air Act.¹ EPA aimed to remove unwarranted regulatory barriers to using biofuels. But that commendable purpose has been frustrated: E15 has failed to achieve widespread market acceptance, because in the past EPA misinterpreted the 1 psi RVP waiver statute, section 211(h)(4), to apply only to gasoline with between 9 and 10 percent ethanol, arbitrarily limiting the times of year in which E15 may be used.

The President has directed EPA to correct this discriminatory and counterproductive regulation of E15. The most straightforward way to accomplish this goal is to give section 211(h)(4) its most logical interpretation and extend the 1 psi RVP waiver to all fuels containing 10 percent ethanol, including E15.² This interpretation of the statute would give effect to Congress's intent and avoid the economically and environmentally detrimental results of EPA's past interpretation. It would also carry out the President's Executive Orders on regulatory costs and outdated rules;³ energy independence and clean air;⁴ and American agriculture and renewable fuels.⁵

¹ *Partial Grant of Clean Air Act Waiver Application Submitted by Growth Energy to Increase the Allowable Ethanol Content of Gasoline to 15 Percent*, 76 Fed. Reg. 4662 (Jan. 26, 2011) (hereinafter E15 Partial Waiver). As discussed below, we believe that the sub-sim law no longer poses any barrier to the use of E15 and higher-level ethanol blends in conventional gasoline vehicles.

² White House Fact Sheet, President Donald J. Trump Is Expanding Waivers for E15 and Increasing Transparency in the RIN Market (Oct. 11, 2018), https://www.whitehouse.gov/briefings-statements/president-donald-j-trump-expanding-waivers-e15-increasing-transparency-rin-market/?utm_source=link.

³ Executive Order 13,771, 82 Fed. Reg. 9339 (Feb. 3, 2017); Executive Order 13,777, § 3(d)(v), 72 Fed. Reg. 12,285 (Mar. 1, 2017).

⁴ Executive Order 13,783, 82 Fed. Reg. 16,093 (Mar. 28, 2017).

⁵ Executive Order 13,790, 82 Fed. Reg. 20237 (Apr. 28, 2017).

I. EPA’s Past Interpretation of the 1 psi RVP Waiver Unreasonably Excludes Blends Over E10.

To control fuel volatility, the 1990 Clean Air Act Amendments prohibited the sale of gasoline with Reid Vapor Pressure (RVP) in excess of 9 pounds per square inch (psi).⁶ Recognizing that this standard would impose a substantial burden on gasoline blended with ethanol, Congress simultaneously allowed a 1 psi waiver “[f]or fuel blends containing gasoline and 10 percent denatured anhydrous ethanol.”⁷ This ratified EPA’s preexisting volatility regulations and its allowance of a 1 psi RVP waiver for gasoline containing “at least 9% ethanol.”⁸ EPA’s rule placed no upper limit on the ethanol content of fuel eligible for the 1 psi waiver, but required only that the ethanol content “not exceed any applicable waiver conditions” under the sub-sim law.⁹

In 1991, EPA amended this rule, restricting the 1 psi waiver to gasoline with an ethanol content of “at least 9% and *no more than 10%* (by volume) of the gasoline.”¹⁰ At the time, replacing the reference to “any applicable waiver conditions” with a “no more than 10%” requirement had no immediate practical effect: Ethanol was not present in the certification fuel and was only allowed in the market at a maximum concentration of 10 percent, by virtue of a sub-sim-waiver pursuant to section 211(f)(4).¹¹ Those circumstances have changed with EPA’s approval of the E15 sub-sim waiver in 2011 and the introduction of ethanol into the gasoline certification fuel in 2017. But EPA’s interpretation of section 211(h)(4) is stuck in 1991.

⁶ Clean Air Act Amendments of 1990, § 216, 104 Stat. 2399, 2489 (Nov. 14, 1990), *codified as amended at* 42 U.S.C. § 7545(h)(1) (emphasis added). Reid Vapor Pressure, or RVP, “is a standard measure of fuel volatility at 100°F.” *Renewables Enhancement and Growth Support Rule*, Proposed Rule, 81 Fed. Reg. 80828, 80851 (Nov. 16, 2016) (hereinafter Proposed REGS Rule). “Volatility is a measure of the propensity of a liquid to evaporate.” *Id.*

⁷ Clean Air Act Amendments of 1990, § 216, 104 Stat. 2399, 2490 (Nov. 14, 1990), *codified at* 42 U.S.C. § 7545(h)(4).

⁸ *Volatility Regulations for Gasoline and Alcohol Blends Sold in Calendar Years 1989 and Beyond*, 54 Fed. Reg. 11868, 11884 (Mar. 22, 1989) (hereinafter Phase I Volatility Rule).

⁹ *Id.* Thus, EPA’s regulation provided that higher ethanol blends would qualify for a 1 psi RVP waiver whenever they were substantially similar to a certification fuel or were granted a waiver under the sub-sim law.

¹⁰ *Regulation of Fuels and Fuel Additives: Standards for Gasoline Volatility; and Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines: Standards for Particulate Emissions From Urban Buses*, 56 Fed. Reg. 64704, 64710 (Dec. 12, 1991), *codified at* 40 C.F.R. § 80.27(d)(2) (emphasis added).

¹¹ *See Regulation of Fuels and Fuel Additives: Standards for Gasoline Volatility; and Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines: Standards for Particulate Emissions From Urban Buses*, Proposed Rule, 56 Fed. Reg. 24242, 24245 (May 29, 1991) (“Compliance with the conditions of a fuel waiver under section 211(f)(4) of the CAA requires that the ethanol portion of the gasoline blend cannot lawfully be any greater than 10 percent (by volume).”).

II. EPA Should Reinterpret the 1 psi RVP Waiver Statute to Cover All Fuel Containing 10 Percent Ethanol, Including E15, as the President Has Directed.

A. The 1 psi RVP Waiver Statute Is Not Limited to E10.

During the previous Administration, EPA maintained—for the first time ever—that the 1 psi waiver statute excludes blends with more than 10 percent ethanol, insisting that “a 1 psi RVP waiver was granted by Congress in 1990 to gasoline-ethanol blends of a least 9 volume percent *and no greater than* 10 volume percent ethanol.”¹² But Congress did not limit the waiver to E10. Congress granted a 1 psi RVP waiver to “fuel blends containing gasoline and 10 percent denatured anhydrous ethanol.”¹³ And E15 fuel blends contain gasoline and 10 percent denatured anhydrous ethanol.

This reading is confirmed by the statutory context.¹⁴ When Congress adopted the 1 psi waiver statute, it included a “deemed to comply” provision that provides an affirmative defense for downstream fuel sellers and carriers who can show that, among other things, “the ethanol portion of the fuel blend does not exceed its waiver condition under” section 211(f)(4).¹⁵ E15 blends comply with this requirement: the “ethanol portion” of an E15 blend “does not exceed” the 15 percent ethanol concentration allowed by the 2011 sub-sim waiver that EPA granted under section 211(f)(4). The deemed to comply provision confirms Congress’s intent to extend the 1 psi RVP waiver to *all* blends containing at least 10 percent ethanol, as long as they are consistent with the sub-sim law. Congress could have limited the “deemed to comply” provision to fuel blends with *no more than* 10 percent ethanol; instead, Congress tied it to compliance with section 211(f), which empowers EPA to approve higher levels of ethanol. It was unreasonable for EPA to interpret section 211(h)(4) as limited to E10 when Congress *expressly* referenced EPA’s authority to allow higher ethanol blends into the market.¹⁶

Any notion that Congress intended to limit the 1 psi RVP waiver to E10 was refuted in 2005. In that year, Congress added section 211(h)(5), allowing States to exempt themselves from the 1 psi waiver’s application to “*all* fuel blends containing gasoline and 10 percent

¹² Proposed REGS Rule, 81 Fed. Reg. at 80851 n.95 (emphasis added). For a detailed but unpersuasive explanation of EPA’s past interpretation, see *Regulation to Mitigate the Misfueling of Vehicles and Engines With Gasoline Containing Greater Than Ten Volume Percent Ethanol and Modifications to the Reformulated and Conventional Gasoline Programs*, 76 Fed. Reg. 44406, 44433–35 (July 25, 2011) (hereinafter *Misfueling Rule*).

¹³ 42 U.S.C. § 7545(h)(4).

¹⁴ *Id.*

¹⁵ *Id.* (second sentence).

¹⁶ In the *Misfueling Rule*, EPA asserted that the reference to section 211(f)(4) in the “deemed to comply” provision somehow implies that Congress limited the 1 psi RVP waiver to no more than 10 percent ethanol. 76 Fed. Reg. at 44434. That is illogical. If Congress wanted to limit the 1 psi waiver to E10, it would have specified fuels containing *no more than* 10 percent ethanol, instead of cross-referencing section 211(f)(4), which allowed EPA to approve higher levels of ethanol, as it has done.

denatured anhydrous ethanol.”¹⁷ If the 1 psi waiver applied only to E10 and excluded higher ethanol blends, Congress’s use of the word “all” would have been superfluous.¹⁸

The historical context of section 211(h)(4)’s enactment further confirms that Congress did not restrict the 1 psi RVP waiver to E10. Congress enacted section 211(h) largely to codify EPA’s preexisting regulations on gasoline RVP.¹⁹ Those regulations granted a 1 psi RVP allowance for any blend of “at least 9% ethanol,” with “the maximum ethanol content ... not exceed[ing] any applicable waiver conditions under section 211(f)(4).”²⁰ Thus, under EPA’s preexisting regulations, a higher ethanol blend would have received the 1 psi RVP waiver if EPA approved the increased concentration of ethanol under section 211(f)(4). There is no evidence to suggest that Congress intended to depart from that approach when it enacted 211(h)(4).²¹

To the contrary, the legislative history strongly suggests that Congress did not intend to restrict the 1 psi RVP waiver to E10 blends. The original bill proposed by the Administration (H.R. 3030) would have limited the 1 psi RVP waiver to “gasoline containing at least 9 *but not more than* 10 per centum ethanol (by volume).”²² But Congress *rejected* the Administration’s proposal for a 10 percent ceiling and instead adopted a 10 percent floor. The Senate bill provided for a 1 psi RVP waiver for “gasoline and 10 percent denatured anhydrous ethanol,” but also provided an affirmative defense where the blend complies with “its waiver condition under” 211(f)(4)—thereby making it clear that the waiver could extend to blends with ethanol concentrations greater than ten percent in the future.²³ The House bill would have achieved the same result, though without any compliance defense—it simply provided that the allowance would apply to “gasoline containing *at least* 10 percent ethanol.”²⁴ Congress ultimately adopted the Senate version. Thus, Congress expressly considered and rejected the

¹⁷ Energy Policy Act of 2005, Pub. L. 109-58, § 1501(c), 119 Stat. 594, 1074–75 (2005), *codified at* 42 U.S.C. § 7545(h)(5).

¹⁸ In the Misfueling Rule, EPA said this State exemption provision (section 211(h)(5)) would provide States with no relief from the 1 psi waiver (section 211(h)(4)) if section 211(h)(4) were interpreted to include blends of more than 10 percent ethanol. 76 Fed. Reg. at 44434–35. This argument is circular. Both provisions use the same phrase (“fuel blends containing gasoline and 10 percent denatured anhydrous ethanol”), so the exemption in section 211(h)(5) covers the same class of fuels as the waiver in section 211(h)(4).

¹⁹ See, e.g., Misfueling Rule, 76 Fed. Reg. at 44433 (“Congress largely codified our RVP regulations by adding a new section 211(h).”).

²⁰ 40 C.F.R. § 80.27(d)(2) (1990).

²¹ Since “gasohol” was the only gasoline blend approved under section 211(f)(4) at the time, preamble language referencing gasohol in EPA’s regulations proves nothing.

²² Clean Air Act Amendments, H.R. 3030, 101st Cong., § 214 (1990) 101st Cong., 1st Sess. (July 27, 1989) (emphasis added).

²³ Clean Air Act Amendments, S. 1630, 101st Cong., § 214 (1990) 101st Cong., 1st Sess. (Sept. 14, 1989).

²⁴ See Clean Air Act Amendments, S. 1630 Engrossed Amendment House, 101st Cong., § 216 (1990) 101st Cong., 2nd Sess. (May 23, 1990) (emphasis added); see also H. Rep. 101-490 at 71, 574 (similar).

Administration’s proposal to limit the 1 psi RVP waiver to blends with no more than 10 percent ethanol. “[T]hese actions by Congress . . . preclude an interpretation” that restricts section 211(h)(4) to gasoline with not more than 10 percent ethanol.²⁵

EPA’s past interpretation of 211(h)(4) ignored this legislative history and instead argued (without a citation) that the legislative history “shows that Congress based the 1 psi waiver on technical data indicating that blending gasoline with ethanol so that it contains 9-10% ethanol results in an approximate 1 psi RVP waiver increase.”²⁶ But this does not suggest that Congress wanted blends above E10 to have no RVP waiver at all. And as explained next, it is unreasonable to allow an RVP waiver for E10 but not to higher ethanol blends like E15.

B. EPA’s Past Interpretation of the 1 psi RVP Waiver Statute Violates Congress’s Intent.

EPA’s needlessly restrictive past interpretation of the 1 psi RVP waiver provision is “unmoored from the purposes and concerns” of the Clean Air Act.²⁷ The purpose of section 211(h) is to control the volatility of commercial gasoline.²⁸ But EPA’s past interpretation ensures that only the most volatile gasoline-ethanol blends are sold. As shown in Figure 1 and acknowledged by EPA, “the addition of ethanol to gasoline” above 10 percent ethanol “decreases blend volatility.”²⁹ In addition,

as EPA has recognized, higher ethanol blends lower the reactivity (*i.e.*, the tendency to form ozone) of the resulting emissions.³⁰ By restricting the 1 psi waiver to gasoline with no more

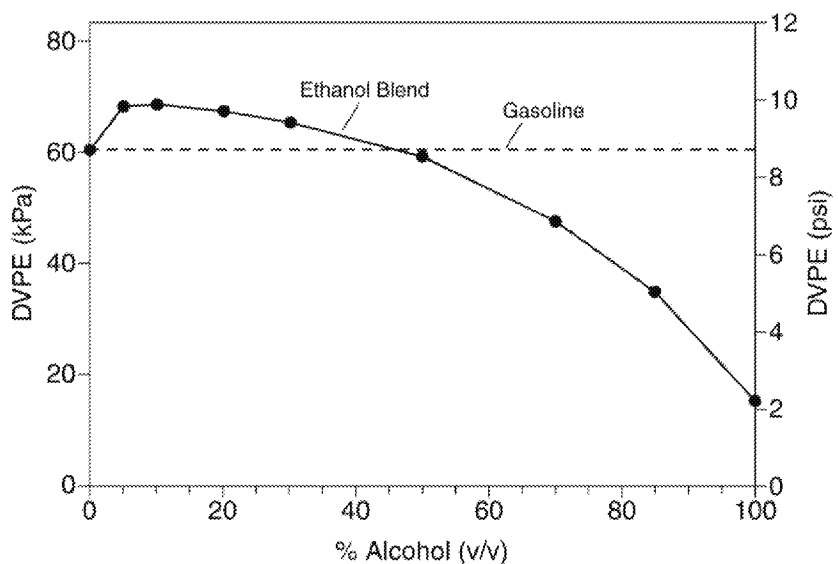


Figure 1. Source: Memorandum from Robert L. McCormick, National Renewable Energy Laboratory, to Kristy Moore, Renewable Fuels Association (Mar. 26, 2012), <http://bit.ly/2oGf3QH>.

²⁵ *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 155 (2000).

²⁶ Misfueling Rule, 76 Fed. Reg. at 44434.

²⁷ *Judulang v. Holder*, 565 U.S. 42, 64 (2011).

²⁸ Congress enacted the volatility program to reduce “commercial gasoline volatility.” S. Rep. No. 101-228, at 109 (1989).

²⁹ Proposed REGS Rule, 81 Fed. Reg. at 80851.

³⁰ See EPA, Report to Congress on Public Health, Air Quality, and Water Resource Impact of Fuel Additive Substitutes for MTBE 63 (Feb. 2009) (“With additional ethanol use, the ethanol content of VOC should

than 10 percent ethanol, EPA's interpretation discourages the sale of a less volatile fuel with less reactive emissions, undermining the objectives of the RVP control program and increasing ozone pollution.

EPA's past interpretation also violates *all* of Congress's purposes in providing a 1 psi waiver for ethanol blends. Congress granted that waiver to achieve the "beneficial environmental, economic, agricultural, energy security and foreign policy implications" of ethanol blending.³¹ Congress determined that a small increase in evaporative emissions was justified by ethanol's countervailing reduction of tailpipe emission: "ethanol burns cleaner than pure hydrocarbon gasoline and thus cause[s] fewer tailpipe emissions."³² Congress recognized that these benefits of ethanol blending could not be achieved without a waiver because of the high "cost of producing and distributing" a "sub-nine pound RVP gasoline" blendstock.³³ Instead of fulfilling Congress's intent, EPA's restrictive interpretation limits the beneficial implications of ethanol blending. It irrationally requires E15 blenders to purchase costly sub-9 psi RVP blendstocks that refiners are unwilling to sell. This imposes prohibitive costs on ethanol blending and unnecessarily limits the "environmental, economic, agricultural, energy security and foreign policy" benefits of increasing ethanol in gasoline.

C. EPA's Past Interpretation of the 1 psi RVP Waiver Statute Irrationally Harms Small Businesses, American Agriculture, and Drivers.

EPA's past interpretation has serious deleterious consequences for American farmers, fuel producers, fuel retailers, and drivers who would benefit from competition among a range of fuels options. Every summer (the period of greatest gasoline demand) nearly a thousand retailers must stop selling E15 because EPA applies a more stringent RVP standard to E15 than it does to E10.³⁴ Small business owners have testified before EPA about the real-world burdens imposed by EPA's interpretation. As the owner of a convenience store in Nevada, Iowa, recently explained:

The only problem I have with the E15 comes every June 1st. On that day, I need to restrict the sales of E15 to flex fuel vehicles only. And on that day, I begin trying to explain to my customers the complex regulations that make the fuel that they buy one day off limits the next day. They are frustrated and I am

increase. Ethanol is less reactive than the average VOC. Therefore, this change should . . . reduce ambient ozone levels.").

³¹ S. Rep. No. 101-228, at 110 (1989).

³² *Id.*

³³ *Id.*

³⁴ EPA, Transcript of Public Hearing, Renewables Enhancement and Growth Support Rule at 25:7-9 (Dec. 6, 2016).

frustrated. And let me tell you, when summer driving season starts, my E15 sales drop like a rock.³⁵

Because EPA's current interpretation of the 1 psi RVP waiver provision is not required by statute, deprives the public of a potential environmental benefit, and harms small business and American agriculture, EPA should revoke that interpretation and affirm that the statutory waiver extends to all gasoline containing 10 percent ethanol, including higher ethanol blends.

III. The Sub-sim Law Does Not Prevent Extending the 1 psi Waiver to Higher Ethanol Blends.

The sub-sim law, section 211(f) of the Clean Air Act, makes it unlawful “to first introduce into commerce, or to increase the concentration in use of, any fuel or fuel additive for use by any person in motor vehicles . . . which is not substantially similar to any fuel or fuel additive utilized” in the certification of new motor vehicles.³⁶

When EPA granted a partial waiver of the sub-sim law for E15 in 2011, it included a requirement that E15 not exceed an RVP of 9 psi during the summer ozone season.³⁷ For two reasons, the sub-sim law should no longer pose any barrier to the extension of the 1 psi RVP waiver to midlevel ethanol blends:

- First, the sub-sim law no longer provides any basis for EPA's control of ethanol content in market fuel, because ethanol is now a fuel additive utilized in certification.
- Second, even if the sub-sim law could somehow be interpreted to limit ethanol content, the Agency should redefine “substantially similar” for gasoline to include midlevel ethanol blends in light of the E10 gasoline certification fuel.

EPA's forthcoming rulemaking to remove the RVP barrier to ethanol blending should adopt both arguments, in the alternative, to reinforce the rule against legal challenges. An RVP rulemaking that ignores presence of ethanol in the certification fuel, and continues to control ethanol concentration under section 211(f), would overlook an important aspect of the problem and invite judicial scrutiny.

A. The Sub-sim Law No Longer Limits Ethanol Concentration.

The sub-sim law prohibits introducing into the market for the first time a new fuel or fuel additive that is “not substantially similar to any fuel or fuel additive utilized in . . . certification,”³⁸ absent a waiver pursuant to section 211(f)(4). The sub-sim statute also makes it

³⁵ *Id.* at 28:15–22, 29:16.

³⁶ 42 U.S.C. § 7545(f)(1)(B).

³⁷ 76 Fed. Reg. 4662, 4682 (Jan. 26, 2011).

³⁸ *Id.*

unlawful to “increase the concentration in use” of certain fuel additives—but, again, only those that are “not substantially similar to any . . . fuel additive utilized in . . . certification.”³⁹ For example, the sub-sim law limits the concentration of fuel additives that had already been “introduce[d] into commerce” at the time of the passage of section 211(f) and yet are not present in certification fuel. The law also makes it unlawful to exceed the “specified concentration” of new fuel additives for which EPA has granted a sub-sim waiver under section 211(f)(4).⁴⁰

Thus, until 2017 it was a violation of section 211(f)(1) to “increase the concentration in use” of ethanol in gasoline beyond 15 percent: Ethanol was not substantially similar to a gasoline certification fuel additive, because the gasoline certification fuel contained no ethanol, and EPA’s sub-sim waiver for E15 was limited to that “specified concentration” of ethanol.

Beginning in 2017, however, the gasoline certification fuel now contains 10 percent ethanol.⁴¹ Whatever range of interpretations it may allow, the term “substantially similar” cannot reasonably be interpreted to *exclude* fuel additives that are *identical* to those used in the relevant certification fuel. Ethanol is a fuel additive used in the gasoline certification fuel,⁴² and just like E10, E15 is “gasoline” fuel under section 211.⁴³ Indeed, as recently as 2016, EPA explained that all gasoline blends containing less than 50% ethanol “are considered gasoline under the EPA’s current [section 211] regulations.”⁴⁴ Because ethanol is a gasoline “fuel additive utilized in . . . certification,” the sub-sim law no longer limits E15.

³⁹ *Id.*

⁴⁰ *Id.* § 7545(f)(4).

⁴¹ *Control of Air Pollution From Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards*, 79 Fed. Reg. 23414, 23810 (Apr. 28, 2014), *codified at* 40 C.F.R. § 1065.710(b)(2).

⁴² EPA’s interpretative rules under the sub-sim law recognize that “aliphatic alcohols,” including ethanol, are gasoline “fuel additives.” *See Fuels and Fuel Additives; Definition of Substantially Similar*, 45 Fed. Reg. 67443, 67447 (Oct. 10, 1980) (hereinafter 1980 Definition of Substantially Similar). This treatment is consistent with EPA’s definition of the term “additive” under section 211: “Additive means any substance, other than one composed solely of carbon and/or hydrogen, that is intentionally added to a fuel named in the designation (including any added to a motor vehicle’s fuel system) and that is not intentionally removed prior to sale or use.” 40 C.F.R. § 79.2(e). It is also consistent with the Agency’s actual practice: ethanol is registered as an unleaded gasoline additive. *See* EPA, List of Registered Gasoline Additives, <https://www3.epa.gov/otaq/fuels1/ffars/web-gas.htm>. Although EPA’s past definitions of substantially similar limited the concentration of some fuel additives to 0.25 percent by weight, aliphatic alcohols have never been subject to that cap. They have instead been subject to an oxygen cap. *Regulation of Fuels and Fuel Additives; Definition of Substantially Similar*, 56 Fed. Reg. 5352, 5355–56 (Feb. 11, 1991) (interpretive rule limiting the oxygen content of gasoline to 2.7 percent by weight, equivalent to significantly less than 10 percent ethanol) (hereinafter 1991 Definition of Substantially Similar).

⁴³ <https://www3.epa.gov/otaq/fuels1/ffars/web-fuel.htm> (listing E15 as registered gasoline fuel).

⁴⁴ *See* Proposed REGS Rule, 81 Fed. Reg. at 80,830; *see also* 40 C.F.R. § 79.56(e)(1)(i) (“The Gasoline Family includes fuels composed of more than 50 percent gasoline by volume and their associated fuel additives.”). Because E85 blends are ethanol fuel, not gasoline, they could not be used in vehicles certified with the gasoline test fuel only. *See id.* § 79.56(e)(1)(iv) (“The Ethanol Family includes fuels composed of at least 50 percent ethanol by volume and their associated fuel additives.”).

Any contrary interpretation of section 211(f) would require EPA to read the phrase “fuel additive” out of the statute and examine only the relationship of the blended fuel (E15) to the certification fuel (E10). Such an interpretation would violate fundamental canons of construction,⁴⁵ and it would be inconsistent with EPA’s treatment of other fuel additives, which—if present in the certification fuel—may be used in market fuel in widely varying concentrations without triggering a sub-sim violation.⁴⁶

Although EPA may no longer control ethanol concentration under the sub-sim law, EPA has other tools at its disposal to limit high concentrations of ethanol (or any other fuel additive) if they are found to cause health problems. Fuel producers can register E16-50 blends as motor vehicle gasoline only after satisfying the registration emission and health-effects testing requirements imposed by EPA.⁴⁷ And EPA can control ethanol blending under section 211(c) of the Clean Air Act if some concentration of ethanol in gasoline “causes, or contributes to, air pollution which may reasonably be anticipated to endanger the public health or welfare” or (2) causes “emissions products” that “impair to a significant degree the performance of any emission control device or system which is [or would soon be] in general use.”⁴⁸

EPA has already exercised its authority under section 211(c) to prohibit the use of gasoline with more than 10% ethanol in “any model year 2000 or older light-duty gasoline motor vehicle, any heavy-duty gasoline motor vehicle or engine, any highway or off-highway motorcycle, or any gasoline-powered nonroad engines, vehicles or equipment.”⁴⁹ That prohibition would continue to apply regardless of how EPA interprets the sub-sim law. And EPA is already required to assess the need for additional fuel regulations to mitigate renewable fuel emissions in its forthcoming Energy Independence and Security Act anti-backsliding study, so interpreting the sub-sim law according to its plain meaning would not impose any significant additional burdens on the Agency.⁵⁰

The D.C. Circuit has rejected EPA’s prior attempt to circumvent section 211(c)’s “very definite scheme” through regulation under section 211(f). In *Ethyl Corp. v. EPA*, the Court rejected EPA’s attempt to deny a sub-sim waiver for a fuel additive under 211(f)(4) because of “concern about the effects on public health that could result if EPA were to” grant such a

⁴⁵ See *Moskal v. United States*, 498 U.S. 103, 109 (1990) (“[A] court should give effect, if possible, to every clause and word of a statute.” (internal quotation marks omitted)).

⁴⁶ For example, the concentration of aromatic hydrocarbons (another octane additive) in gasoline varied between 4% and 40% in market gasoline sampled by the Alliance of Automobile Manufacturers in 2014. Alliance of Automobile Manufacturers, North American Fuel Survey (Summer 2014). This variation is consistent with the sub-sim law, because aromatic hydrocarbons are present in the gasoline certification fuel.

⁴⁷ 40 C.F.R. §§ 79.11(j), 79.32(a)(1)

⁴⁸ 42 U.S.C. § 7545(c)(1).

⁴⁹ 40 C.F.R. § 80.1504(a)(1).

⁵⁰ 42 U.S.C. § 7545(v)(1).

waiver.⁵¹ In rejecting EPA’s claim that it could use section 211(f) to regulate fuels “in the public interest,” the Court observed that the detailed scheme of regulation established by section 211(c) demonstrated that “Congress did not delegate to the Agency the authority to consider other factors ‘in the public interest’ such as public health when acting under section 211(f)(4).”⁵² The current sub-sim waiver for E15 is now out of sync with Congress’s regulatory scheme: no waiver is necessary now that ethanol is a fuel additive used in certification. The E15 waiver is not just superfluous—it imposes a stringent RVP standard on E15 because it erroneously denies that fuel the benefit of the 1 psi RVP waiver. Recognizing that ethanol is now utilized in the gasoline certification fuel and thus no longer controlled by section 211(f) is the simplest way to solve the dilemma created by the existing sub-sim waiver for E15. In the preamble to a rule re-interpreting section 211(h)’s 1 psi RVP waiver to apply to higher ethanol blends, EPA could simply explain the changed factual circumstances that obviate any further ethanol sub-sim waivers under section 211(f).

If EPA’s RVP rulemaking ignores the changed factual predicate to its past control of ethanol concentration under section 211(f)—the replacement of an ethanol-free certification fuel with E10 in 2017—the rule will be susceptible to the argument that it is arbitrary and capricious, because EPA has “entirely failed to consider an important aspect of the problem.”⁵³

B. In the Alternative, EPA Should Redefine “Substantially Similar” To Include E15.

Our next point is an argument in the alternative, and EPA should propose it as an alternative justification for the forthcoming RVP rule: Even if the sub-sim law could be interpreted to limit ethanol content (and for the reasons discussed above, it cannot), EPA should nevertheless update its “substantially similar” definition, in light of the new E10 certification fuel, to include some range of ethanol content up to or exceeding E15.⁵⁴ EPA’s current definition of “substantially similar” for gasoline was last amended in a 1991

⁵¹ 51 F.3d 1053, 1057 (D.C. Cir. 1995).

⁵² *Id.* at 1061; *see also American Methyl Corp. v. EPA*, 749 F.2d 826, 836 (D.C. Cir. 1984) (rejecting EPA’s attempt to revoke a 211(f)(4) waiver as inconsistent with the design of the statute because “section 211(f) forbids the ‘first’ introduction of new fuels and new fuel additives” while “section 211(c) provides for regulation of fuels already in commerce”). EPA has also recognized that if it wants to control fuel and fuel additive emissions, it must do so under 211(c), and not under the guise of interpreting the term “substantially similar” in 211(f)(1). *See* 1980 Definition of Substantially Similar, 45 Fed. Reg. at 67445.

⁵³ *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *see also Bechtel v. FCC*, 957 F.2d 873, 880–81 (D.C. Cir. 1992) (“[C]hanges in factual and legal circumstances may impose upon the agency an obligation to reconsider a settled policy or explain its failure to do so.”).

⁵⁴ EPA previously proposed defining “substantially similar” for gasoline to include blends of up to 12 percent ethanol. EPA did so at a time when there was no ethanol in the standard gasoline certification fuel. *Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program*, 74 Fed. Reg. 24904, 25018–19 (May 26, 2009). The justification for treating such fuel as “substantially similar” is much stronger now that there is 10 percent ethanol in the certification fuel.

interpretive rule that is clearly outdated: it purports to establish a 2.7 percent limit on oxygen content, corresponding to roughly 7.5% ethanol by volume.⁵⁵ But the new E10 gasoline certification fuel contains at least 3.5% oxygen. Thus, the 2.7% oxygen restriction is obsolete and must be revised: at the very least, “substantially similar” must now include E10 and blends similar to E10.

Because the term “substantially similar” is ambiguous, EPA has broad discretion to interpret it to encompass gasoline blends with higher ethanol content as long the interpretation is reasonable and adequately supported by the facts.⁵⁶

There is a strong factual case for concluding that E15 and higher ethanol blends are substantially similar to E10.

First, the chemical and physical properties of E15 and higher ethanol blends are similar to those of the new E10 certification fuel in every sense relevant to emissions controls and performance. When EPA last interpreted “substantially similar” for gasoline, EPA required that the finished fuel possess “the physical and chemical specifications” of ASTM’s then-current standard for gasoline.⁵⁷ E15’s physical and chemical characteristics fully comply with the updated ASTM Standard—ASTM D4814-17.⁵⁸ These changed facts justify finding that E15 is substantially similar to the E10 certification fuel.

Second, when EPA capped the oxygen content of gasoline containing ethanol in the 1980s and early 90s, it did so in order to limit the possible “enleanment” of the air-fuel mixture “which could lead to NO_x emission increases in some cars.”⁵⁹ This rationale has been substantially weakened by technological advances. Most vehicles that are still within their useful life use advanced calibration strategies to tightly control air-fuel ratios and prevent the enleanment of the fuel mixture in order to maintain emissions performance over the useful life of the vehicles.⁶⁰ As EPA concluded in 2011, to comply with Tier 2 and earlier requirements,

⁵⁵ 1991 Definition of Substantially Similar, 56 Fed. Reg. 5352.

⁵⁶ *Cf. Zurich Am. Ins. Grp. v. Duncan on behalf of Duncan*, 889 F.3d 293, 302 (6th Cir. 2018) (holding that the term “substantially similar” used in the Black Lung Benefits Act is ambiguous under the *Chevron* framework).

⁵⁷ *Id.* at 5354–55.

⁵⁸ ASTM, Standard Specification for Automotive Spark-Ignition Engine Fuel, D4814-17, Table 1 (2017); *see generally* API, Determination of the Potential Property Ranges of Mid-Level Ethanol Blends, Final Report, at 1 (Apr. 23, 2010) (“[B]lending ethanol into gasoline at concentrations between 10% and 30% by volume should pose no additional challenge to meeting the volatility requirements in the current ASTM . . . specifications,” with one exception for blends with more than 20% ethanol that *no* longer applies under ASTM 4814-17).

⁵⁹ 1991 Definition of Substantially Similar, 56 Fed. Reg. at 5354. “Enleanment refers to increasing the amount of oxygen in the mixture of air and fuel that enters the engine for combustion.” E15 Partial Waiver, 76 Fed. Reg. at 4669 n.19.

⁶⁰ *See* Georgios Karavalakis, *Impacts of Ethanol Fuel Level on Emissions of Regulated and Unregulated Pollutants from a Fleet of Gasoline Light-Duty Vehicles*, 93 Fuel 549, 551–52 (2012) (finding that “[o]lder technology vehicles” made before 1996 lacked “sophisticated controls of air-fuel ratios at” the levels required to prevent

manufacturers adopted sophisticated technologies that prevent long-term catalyst deterioration and that “allow motor vehicles to operate over E15 without significant changes in exhaust emissions.”⁶¹ Many studies have found that in today’s vehicles, midlevel ethanol blends up to at least E30 have no significant adverse effect on (and can even lower) immediate NO_x emissions, as compared to E10.⁶² An extensive catalyst durability study by the Department of Energy also found no long-term adverse effect on exhaust emissions in vehicles aged with E15 and E20 blends.⁶³ As EPA has noted, the results of this Department of Energy study “provide compelling support for the conclusion that long-term use of E15 will not cause or contribute to” vehicles exceeding exhaust emission standards over their full useful lives.⁶⁴

To be sure, in 2011, EPA also predicted that E15 may still cause “small immediate increases in NO_x emissions” (5 to 10%) in some vehicles due to enleanment.⁶⁵ But EPA also found that “[g]iven the relatively small magnitude of the immediate NO_x emissions increase in relation to the large compliance margins that motor vehicle manufacturers have traditionally built in to the products they certify, and the lack of any significant increase in NO_x emissions deterioration with E15 in comparison to E0, it is reasonable to expect that E15 will not cause or contribute to” vehicles exceeding their emission standards over their full useful life.⁶⁶ Given these findings, EPA’s rationale for limiting the oxygen content of gasoline has been weakened by advances in vehicle control technology and should at a minimum be expanded to encompass E15.

Conclusion

Under the best reading of section 211(h)(4), the 1 psi RVP waiver applies to all fuels containing 10 percent ethanol, including E15. Whether by recognizing that ethanol is now

enleanment with E10, E20, and higher ethanol levels, but showing no statistically significant difference in NO_x emissions for model year 1996 and later vehicles).

⁶¹ E15 Partial Waiver, 76 Fed. Reg. at 4669.

⁶² See, e.g., Carolyn Hubbard et al., *Ethanol and Air Quality: Influence of Fuel Ethanol Content on Emissions and Fuel Economy of Flexible Fuel Vehicles*, 48 Environ. Sci. & Tech. 861, 863 (2014) (finding lower NO_x emissions for E20, E30 and E40 relative to E10); Georgios Karavalakis et al., *Regulated Emissions, Air Toxics, and Particle Emissions from SI-DI Light-Duty Vehicles Operating on Different Iso-Butanol and Ethanol Blends*, SAE Tech. Paper 2014-01-1451, at 6 (finding no statistically significant difference for NO_x emissions between E10, E15, and E20); John M. Storey et al., *Ethanol Blend Effects On Direct Injection Spark-Ignition Gasoline Vehicle Particulate Matter Emissions*, 3 SAE Int. J. Fuels Lubr. 650, 653 (2010) (finding lower NO_x emissions for E20 relative E10); Knoll et al., *Effects of Mid-Level Ethanol Blends on Conventional Vehicle Emissions*, SAE Tech. Paper 2009-01-2723, at 1 (“Vehicles found to apply long-term fuel trim (LTFT) to power-enrichment fueling showed no statistically significant fuel effect on . . . NO_x” when using E15 and E20 instead of E10).

⁶³ Brian H. West et al., *Intermediate Ethanol Blends Catalyst Durability Program D-7* (Feb. 2012) (“[I]t appears reasonable to conclude that the use of ethanol fuels does not change the aging that is observed for NO_x.”).

⁶⁴ E15 Partial Waiver, 76 Fed. Reg. at 4671.

⁶⁵ *Id.* at 4672.

⁶⁶ *Id.*

substantially similar to a certification fuel additive, or by promulgating a new interpretive rule defining “substantially similar” for gasoline, EPA could realize the economic, environmental, and national security benefits of E15 with the 1 psi waiver. Although the first approach is simplest and gives effect to the plain meaning of section 211(f)(1)(B), either would avoid any recourse to the sub-sim waiver process of section 211(f)(4). To strengthen the forthcoming rule against inevitable legal challenges, EPA should adopt both legal rationales as alternative arguments. Equalizing EPA’s RVP standards for E10 and E15 would answer the President’s call to eliminate costly regulatory barriers and to promote clean air, American agriculture, and energy security.

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December 7, 2018

To: Justin Schwab, Deputy General Counsel, Environmental Protection Agency

From: Adam Gustafson; James Conde

Re: EPA's Authority To Extend the 1 psi RVP Waiver to Midlevel Ethanol Blends

Most drivers have no access to E15—a cleaner, more cost-effective, and higher octane fuel than the E10 that prevails in the market today—even though E15 has been a legal fuel for several years. In 2011, EPA approved E15 for use in Model Year 2001 and newer vehicles under a waiver pursuant to the “sub-sim” law, section 211(f)(4) of the Clean Air Act.¹ EPA aimed to remove unwarranted regulatory barriers to using biofuels. But that commendable purpose has been frustrated: E15 has failed to achieve widespread market acceptance, because in the past EPA misinterpreted the 1 psi RVP waiver statute, section 211(h)(4), to apply only to gasoline with between 9 and 10 percent ethanol, arbitrarily limiting the times of year in which E15 may be used.

The President has directed EPA to correct this discriminatory and counterproductive regulation of E15. The most straightforward way to accomplish this goal is to give section 211(h)(4) its most logical interpretation and extend the 1 psi RVP waiver to all fuels containing 10 percent ethanol, including E15.² This interpretation of the statute would give effect to Congress's intent and avoid the economically and environmentally detrimental results of EPA's past interpretation. It would also carry out the President's Executive Orders on regulatory costs and outdated rules;³ energy independence and clean air;⁴ and American agriculture and renewable fuels.⁵

¹ *Partial Grant of Clean Air Act Waiver Application Submitted by Growth Energy to Increase the Allowable Ethanol Content of Gasoline to 15 Percent*, 76 Fed. Reg. 4662 (Jan. 26, 2011) (hereinafter E15 Partial Waiver). As discussed below, we believe that the sub-sim law no longer poses any barrier to the use of E15 and higher-level ethanol blends in conventional gasoline vehicles.

² White House Fact Sheet, President Donald J. Trump Is Expanding Waivers for E15 and Increasing Transparency in the RIN Market (Oct. 11, 2018), https://www.whitehouse.gov/briefings-statements/president-donald-j-trump-expanding-waivers-e15-increasing-transparency-rin-market/?utm_source=link.

³ Executive Order 13,771, 82 Fed. Reg. 9339 (Feb. 3, 2017); Executive Order 13,777, § 3(d)(v), 72 Fed. Reg. 12,285 (Mar. 1, 2017).

⁴ Executive Order 13,783, 82 Fed. Reg. 16,093 (Mar. 28, 2017).

⁵ Executive Order 13,790, 82 Fed. Reg. 20237 (Apr. 28, 2017).

I. EPA's Past Interpretation of the 1 psi RVP Waiver Unreasonably Excludes Blends Over E10.

To control fuel volatility, the 1990 Clean Air Act Amendments prohibited the sale of gasoline with Reid Vapor Pressure (RVP) in excess of 9 pounds per square inch (psi).⁶ Recognizing that this standard would impose a substantial burden on gasoline blended with ethanol, Congress simultaneously allowed a 1 psi waiver “[f]or fuel blends containing gasoline and 10 percent denatured anhydrous ethanol.”⁷ This ratified EPA’s preexisting volatility regulations and its allowance of a 1 psi RVP waiver for gasoline containing “at least 9% ethanol.”⁸ EPA’s rule placed no upper limit on the ethanol content of fuel eligible for the 1 psi waiver, but required only that the ethanol content “not exceed any applicable waiver conditions” under the sub-sim law.⁹

In 1991, EPA amended this rule, restricting the 1 psi waiver to gasoline with an ethanol content of “at least 9% and *no more than 10%* (by volume) of the gasoline.”¹⁰ At the time, replacing the reference to “any applicable waiver conditions” with a “no more than 10%” requirement had no immediate practical effect: Ethanol was not present in the certification fuel and was only allowed in the market at a maximum concentration of 10 percent, by virtue of a sub-sim-waiver pursuant to section 211(f)(4).¹¹ Those circumstances have changed with EPA’s approval of the E15 sub-sim waiver in 2011 and the introduction of ethanol into the gasoline certification fuel in 2017. But EPA’s interpretation of section 211(h)(4) is stuck in 1991.

⁶ Clean Air Act Amendments of 1990, § 216, 104 Stat. 2399, 2489 (Nov. 14, 1990), *codified as amended at* 42 U.S.C. § 7545(h)(1) (emphasis added). Reid Vapor Pressure, or RVP, “is a standard measure of fuel volatility at 100°F.” *Renewables Enhancement and Growth Support Rule*, Proposed Rule, 81 Fed. Reg. 80828, 80851 (Nov. 16, 2016) (hereinafter Proposed REGS Rule). “Volatility is a measure of the propensity of a liquid to evaporate.” *Id.*

⁷ Clean Air Act Amendments of 1990, § 216, 104 Stat. 2399, 2490 (Nov. 14, 1990), *codified at* 42 U.S.C. § 7545(h)(4).

⁸ *Volatility Regulations for Gasoline and Alcohol Blends Sold in Calendar Years 1989 and Beyond*, 54 Fed. Reg. 11868, 11884 (Mar. 22, 1989) (hereinafter Phase I Volatility Rule).

⁹ *Id.* Thus, EPA’s regulation provided that higher ethanol blends would qualify for a 1 psi RVP waiver whenever they were substantially similar to a certification fuel or were granted a waiver under the sub-sim law.

¹⁰ *Regulation of Fuels and Fuel Additives: Standards for Gasoline Volatility; and Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines: Standards for Particulate Emissions From Urban Buses*, 56 Fed. Reg. 64704, 64710 (Dec. 12, 1991), *codified at* 40 C.F.R. § 80.27(d)(2) (emphasis added).

¹¹ *See Regulation of Fuels and Fuel Additives: Standards for Gasoline Volatility; and Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines: Standards for Particulate Emissions From Urban Buses*, Proposed Rule, 56 Fed. Reg. 24242, 24245 (May 29, 1991) (“Compliance with the conditions of a fuel waiver under section 211(f)(4) of the CAA requires that the ethanol portion of the gasoline blend cannot lawfully be any greater than 10 percent (by volume).”).

II. EPA Should Reinterpret the 1 psi RVP Waiver Statute to Cover All Fuel Containing 10 Percent Ethanol, Including E15, as the President Has Directed.

A. The 1 psi RVP Waiver Statute Is Not Limited to E10.

During the previous Administration, EPA maintained—for the first time ever—that the 1 psi waiver statute excludes blends with more than 10 percent ethanol, insisting that “a 1 psi RVP waiver was granted by Congress in 1990 to gasoline-ethanol blends of a least 9 volume percent *and no greater than* 10 volume percent ethanol.”¹² But Congress did not limit the waiver to E10. Congress granted a 1 psi RVP waiver to “fuel blends containing gasoline and 10 percent denatured anhydrous ethanol.”¹³ And E15 fuel blends contain gasoline and 10 percent denatured anhydrous ethanol.

This reading is confirmed by the statutory context.¹⁴ When Congress adopted the 1 psi waiver statute, it included a “deemed to comply” provision that provides an affirmative defense for downstream fuel sellers and carriers who can show that, among other things, “the ethanol portion of the fuel blend does not exceed its waiver condition under” section 211(f)(4).¹⁵ E15 blends comply with this requirement: the “ethanol portion” of an E15 blend “does not exceed” the 15 percent ethanol concentration allowed by the 2011 sub-sim waiver that EPA granted under section 211(f)(4). The deemed to comply provision confirms Congress’s intent to extend the 1 psi RVP waiver to *all* blends containing at least 10 percent ethanol, as long as they are consistent with the sub-sim law. Congress could have limited the “deemed to comply” provision to fuel blends with *no more than* 10 percent ethanol; instead, Congress tied it to compliance with section 211(f), which empowers EPA to approve higher levels of ethanol. It was unreasonable for EPA to interpret section 211(h)(4) as limited to E10 when Congress *expressly* referenced EPA’s authority to allow higher ethanol blends into the market.¹⁶

Any notion that Congress intended to limit the 1 psi RVP waiver to E10 was refuted in 2005. In that year, Congress added section 211(h)(5), allowing States to exempt themselves from the 1 psi waiver’s application to “*all* fuel blends containing gasoline and 10 percent

¹² Proposed REGS Rule, 81 Fed. Reg. at 80851 n.95 (emphasis added). For a detailed but unpersuasive explanation of EPA’s past interpretation, see *Regulation to Mitigate the Misfueling of Vehicles and Engines With Gasoline Containing Greater Than Ten Volume Percent Ethanol and Modifications to the Reformulated and Conventional Gasoline Programs*, 76 Fed. Reg. 44406, 44433–35 (July 25, 2011) (hereinafter *Misfueling Rule*).

¹³ 42 U.S.C. § 7545(h)(4).

¹⁴ *Id.*

¹⁵ *Id.* (second sentence).

¹⁶ In the *Misfueling Rule*, EPA asserted that the reference to section 211(f)(4) in the “deemed to comply” provision somehow implies that Congress limited the 1 psi RVP waiver to no more than 10 percent ethanol. 76 Fed. Reg. at 44434. That is illogical. If Congress wanted to limit the 1 psi waiver to E10, it would have specified fuels containing *no more than* 10 percent ethanol, instead of cross-referencing section 211(f)(4), which allowed EPA to approve higher levels of ethanol, as it has done.

denatured anhydrous ethanol.”¹⁷ If the 1 psi waiver applied only to E10 and excluded higher ethanol blends, Congress’s use of the word “all” would have been superfluous.¹⁸

The historical context of section 211(h)(4)’s enactment further confirms that Congress did not restrict the 1 psi RVP waiver to E10. Congress enacted section 211(h) largely to codify EPA’s preexisting regulations on gasoline RVP.¹⁹ Those regulations granted a 1 psi RVP allowance for any blend of “at least 9% ethanol,” with “the maximum ethanol content ... not exceed[ing] any applicable waiver conditions under section 211(f)(4).”²⁰ Thus, under EPA’s preexisting regulations, a higher ethanol blend would have received the 1 psi RVP waiver if EPA approved the increased concentration of ethanol under section 211(f)(4). There is no evidence to suggest that Congress intended to depart from that approach when it enacted 211(h)(4).²¹

To the contrary, the legislative history strongly suggests that Congress did not intend to restrict the 1 psi RVP waiver to E10 blends. The original bill proposed by the Administration (H.R. 3030) would have limited the 1 psi RVP waiver to “gasoline containing at least 9 *but not more than* 10 per centum ethanol (by volume).”²² But Congress *rejected* the Administration’s proposal for a 10 percent ceiling and instead adopted a 10 percent floor. The Senate bill provided for a 1 psi RVP waiver for “gasoline and 10 percent denatured anhydrous ethanol,” but also provided an affirmative defense where the blend complies with “its waiver condition under” 211(f)(4)—thereby making it clear that the waiver could extend to blends with ethanol concentrations greater than ten percent in the future.²³ The House bill would have achieved the same result, though without any compliance defense—it simply provided that the allowance would apply to “gasoline containing *at least* 10 percent ethanol.”²⁴ Congress ultimately adopted the Senate version. Thus, Congress expressly considered and rejected the

¹⁷ Energy Policy Act of 2005, Pub. L. 109-58, § 1501(c), 119 Stat. 594, 1074–75 (2005), *codified at* 42 U.S.C. § 7545(h)(5).

¹⁸ In the Misfueling Rule, EPA said this State exemption provision (section 211(h)(5)) would provide States with no relief from the 1 psi waiver (section 211(h)(4)) if section 211(h)(4) were interpreted to include blends of more than 10 percent ethanol. 76 Fed. Reg. at 44434–35. This argument is circular. Both provisions use the same phrase (“fuel blends containing gasoline and 10 percent denatured anhydrous ethanol”), so the exemption in section 211(h)(5) covers the same class of fuels as the waiver in section 211(h)(4).

¹⁹ See, e.g., Misfueling Rule, 76 Fed. Reg. at 44433 (“Congress largely codified our RVP regulations by adding a new section 211(h).”).

²⁰ 40 C.F.R. § 80.27(d)(2) (1990).

²¹ Since “gasohol” was the only gasoline blend approved under section 211(f)(4) at the time, preamble language referencing gasohol in EPA’s regulations proves nothing.

²² Clean Air Act Amendments, H.R. 3030, 101st Cong., § 214 (1990) 101st Cong., 1st Sess. (July 27, 1989) (emphasis added).

²³ Clean Air Act Amendments, S. 1630, 101st Cong., § 214 (1990) 101st Cong., 1st Sess. (Sept. 14, 1989).

²⁴ See Clean Air Act Amendments, S. 1630 Engrossed Amendment House, 101st Cong., § 216 (1990) 101st Cong., 2nd Sess. (May 23, 1990) (emphasis added); see also H. Rep. 101-490 at 71, 574 (similar).

Administration’s proposal to limit the 1 psi RVP waiver to blends with no more than 10 percent ethanol. “[T]hese actions by Congress . . . preclude an interpretation” that restricts section 211(h)(4) to gasoline with not more than 10 percent ethanol.²⁵

EPA’s past interpretation of 211(h)(4) ignored this legislative history and instead argued (without a citation) that the legislative history “shows that Congress based the 1 psi waiver on technical data indicating that blending gasoline with ethanol so that it contains 9-10% ethanol results in an approximate 1 psi RVP waiver increase.”²⁶ But this does not suggest that Congress wanted blends above E10 to have no RVP waiver at all. And as explained next, it is unreasonable to allow an RVP waiver for E10 but not to higher ethanol blends like E15.

B. EPA’s Past Interpretation of the 1 psi RVP Waiver Statute Violates Congress’s Intent.

EPA’s needlessly restrictive past interpretation of the 1 psi RVP waiver provision is “unmoored from the purposes and concerns” of the Clean Air Act.²⁷ The purpose of section 211(h) is to control the volatility of commercial gasoline.²⁸ But EPA’s past interpretation ensures that only the most volatile gasoline-ethanol blends are sold. As shown in Figure 1 and acknowledged by EPA, “the addition of ethanol to gasoline” above 10 percent ethanol “decreases blend volatility.”²⁹ In addition,

as EPA has recognized, higher ethanol blends lower the reactivity (*i.e.*, the tendency to form ozone) of the resulting emissions.³⁰ By restricting the 1 psi waiver to gasoline with no more

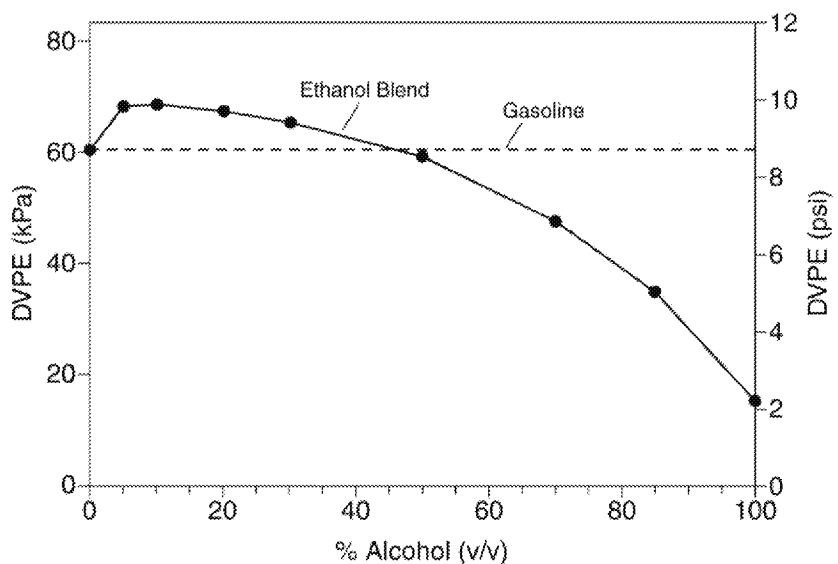


Figure 1. Source: Memorandum from Robert L. McCormick, National Renewable Energy Laboratory, to Kristy Moore, Renewable Fuels Association (Mar. 26, 2012), <http://bit.ly/2oGf3QH>.

²⁵ *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 155 (2000).

²⁶ Misfueling Rule, 76 Fed. Reg. at 44434.

²⁷ *Judulang v. Holder*, 565 U.S. 42, 64 (2011).

²⁸ Congress enacted the volatility program to reduce “commercial gasoline volatility.” S. Rep. No. 101-228, at 109 (1989).

²⁹ Proposed REGS Rule, 81 Fed. Reg. at 80851.

³⁰ See EPA, Report to Congress on Public Health, Air Quality, and Water Resource Impact of Fuel Additive Substitutes for MTBE 63 (Feb. 2009) (“With additional ethanol use, the ethanol content of VOC should

than 10 percent ethanol, EPA's interpretation discourages the sale of a less volatile fuel with less reactive emissions, undermining the objectives of the RVP control program and increasing ozone pollution.

EPA's past interpretation also violates *all* of Congress's purposes in providing a 1 psi waiver for ethanol blends. Congress granted that waiver to achieve the "beneficial environmental, economic, agricultural, energy security and foreign policy implications" of ethanol blending.³¹ Congress determined that a small increase in evaporative emissions was justified by ethanol's countervailing reduction of tailpipe emission: "ethanol burns cleaner than pure hydrocarbon gasoline and thus cause[s] fewer tailpipe emissions."³² Congress recognized that these benefits of ethanol blending could not be achieved without a waiver because of the high "cost of producing and distributing" a "sub-nine pound RVP gasoline" blendstock.³³ Instead of fulfilling Congress's intent, EPA's restrictive interpretation limits the beneficial implications of ethanol blending. It irrationally requires E15 blenders to purchase costly sub-9 psi RVP blendstocks that refiners are unwilling to sell. This imposes prohibitive costs on ethanol blending and unnecessarily limits the "environmental, economic, agricultural, energy security and foreign policy" benefits of increasing ethanol in gasoline.

C. EPA's Past Interpretation of the 1 psi RVP Waiver Statute Irrationally Harms Small Businesses, American Agriculture, and Drivers.

EPA's past interpretation has serious deleterious consequences for American farmers, fuel producers, fuel retailers, and drivers who would benefit from competition among a range of fuels options. Every summer (the period of greatest gasoline demand) nearly a thousand retailers must stop selling E15 because EPA applies a more stringent RVP standard to E15 than it does to E10.³⁴ Small business owners have testified before EPA about the real-world burdens imposed by EPA's interpretation. As the owner of a convenience store in Nevada, Iowa, recently explained:

The only problem I have with the E15 comes every June 1st. On that day, I need to restrict the sales of E15 to flex fuel vehicles only. And on that day, I begin trying to explain to my customers the complex regulations that make the fuel that they buy one day off limits the next day. They are frustrated and I am

increase. Ethanol is less reactive than the average VOC. Therefore, this change should . . . reduce ambient ozone levels.").

³¹ S. Rep. No. 101-228, at 110 (1989).

³² *Id.*

³³ *Id.*

³⁴ EPA, Transcript of Public Hearing, Renewables Enhancement and Growth Support Rule at 25:7-9 (Dec. 6, 2016).

frustrated. And let me tell you, when summer driving season starts, my E15 sales drop like a rock.³⁵

Because EPA's current interpretation of the 1 psi RVP waiver provision is not required by statute, deprives the public of a potential environmental benefit, and harms small business and American agriculture, EPA should revoke that interpretation and affirm that the statutory waiver extends to all gasoline containing 10 percent ethanol, including higher ethanol blends.

III. The Sub-sim Law Does Not Prevent Extending the 1 psi Waiver to Higher Ethanol Blends.

The sub-sim law, section 211(f) of the Clean Air Act, makes it unlawful “to first introduce into commerce, or to increase the concentration in use of, any fuel or fuel additive for use by any person in motor vehicles . . . which is not substantially similar to any fuel or fuel additive utilized” in the certification of new motor vehicles.³⁶

When EPA granted a partial waiver of the sub-sim law for E15 in 2011, it included a requirement that E15 not exceed an RVP of 9 psi during the summer ozone season.³⁷ For two reasons, the sub-sim law should no longer pose any barrier to the extension of the 1 psi RVP waiver to midlevel ethanol blends:

- First, the sub-sim law no longer provides any basis for EPA's control of ethanol content in market fuel, because ethanol is now a fuel additive utilized in certification.
- Second, even if the sub-sim law could somehow be interpreted to limit ethanol content, the Agency should redefine “substantially similar” for gasoline to include midlevel ethanol blends in light of the E10 gasoline certification fuel.

EPA's forthcoming rulemaking to remove the RVP barrier to ethanol blending should adopt both arguments, in the alternative, to reinforce the rule against legal challenges. An RVP rulemaking that ignores presence of ethanol in the certification fuel, and continues to control ethanol concentration under section 211(f), would overlook an important aspect of the problem and invite judicial scrutiny.

A. The Sub-sim Law No Longer Limits Ethanol Concentration.

The sub-sim law prohibits introducing into the market for the first time a new fuel or fuel additive that is “not substantially similar to any fuel or fuel additive utilized in . . . certification,”³⁸ absent a waiver pursuant to section 211(f)(4). The sub-sim statute also makes it

³⁵ *Id.* at 28:15–22, 29:16.

³⁶ 42 U.S.C. § 7545(f)(1)(B).

³⁷ 76 Fed. Reg. 4662, 4682 (Jan. 26, 2011).

³⁸ *Id.*

unlawful to “increase the concentration in use” of certain fuel additives—but, again, only those that are “not substantially similar to any . . . fuel additive utilized in . . . certification.”³⁹ For example, the sub-sim law limits the concentration of fuel additives that had already been “introduce[d] into commerce” at the time of the passage of section 211(f) and yet are not present in certification fuel. The law also makes it unlawful to exceed the “specified concentration” of new fuel additives for which EPA has granted a sub-sim waiver under section 211(f)(4).⁴⁰

Thus, until 2017 it was a violation of section 211(f)(1) to “increase the concentration in use” of ethanol in gasoline beyond 15 percent: Ethanol was not substantially similar to a gasoline certification fuel additive, because the gasoline certification fuel contained no ethanol, and EPA’s sub-sim waiver for E15 was limited to that “specified concentration” of ethanol.

Beginning in 2017, however, the gasoline certification fuel now contains 10 percent ethanol.⁴¹ Whatever range of interpretations it may allow, the term “substantially similar” cannot reasonably be interpreted to *exclude* fuel additives that are *identical* to those used in the relevant certification fuel. Ethanol is a fuel additive used in the gasoline certification fuel,⁴² and just like E10, E15 is “gasoline” fuel under section 211.⁴³ Indeed, as recently as 2016, EPA explained that all gasoline blends containing less than 50% ethanol “are considered gasoline under the EPA’s current [section 211] regulations.”⁴⁴ Because ethanol is a gasoline “fuel additive utilized in . . . certification,” the sub-sim law no longer limits E15.

³⁹ *Id.*

⁴⁰ *Id.* § 7545(f)(4).

⁴¹ *Control of Air Pollution From Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards*, 79 Fed. Reg. 23414, 23810 (Apr. 28, 2014), *codified at* 40 C.F.R. § 1065.710(b)(2).

⁴² EPA’s interpretative rules under the sub-sim law recognize that “aliphatic alcohols,” including ethanol, are gasoline “fuel additives.” *See Fuels and Fuel Additives; Definition of Substantially Similar*, 45 Fed. Reg. 67443, 67447 (Oct. 10, 1980) (hereinafter 1980 Definition of Substantially Similar). This treatment is consistent with EPA’s definition of the term “additive” under section 211: “Additive means any substance, other than one composed solely of carbon and/or hydrogen, that is intentionally added to a fuel named in the designation (including any added to a motor vehicle’s fuel system) and that is not intentionally removed prior to sale or use.” 40 C.F.R. § 79.2(e). It is also consistent with the Agency’s actual practice: ethanol is registered as an unleaded gasoline additive. *See* EPA, List of Registered Gasoline Additives, <https://www3.epa.gov/otaq/fuels1/ffars/web-gas.htm>. Although EPA’s past definitions of substantially similar limited the concentration of some fuel additives to 0.25 percent by weight, aliphatic alcohols have never been subject to that cap. They have instead been subject to an oxygen cap. *Regulation of Fuels and Fuel Additives; Definition of Substantially Similar*, 56 Fed. Reg. 5352, 5355–56 (Feb. 11, 1991) (interpretive rule limiting the oxygen content of gasoline to 2.7 percent by weight, equivalent to significantly less than 10 percent ethanol) (hereinafter 1991 Definition of Substantially Similar).

⁴³ <https://www3.epa.gov/otaq/fuels1/ffars/web-fuel.htm> (listing E15 as registered gasoline fuel).

⁴⁴ *See* Proposed REGS Rule, 81 Fed. Reg. at 80,830; *see also* 40 C.F.R. § 79.56(e)(1)(i) (“The Gasoline Family includes fuels composed of more than 50 percent gasoline by volume and their associated fuel additives.”). Because E85 blends are ethanol fuel, not gasoline, they could not be used in vehicles certified with the gasoline test fuel only. *See id.* § 79.56(e)(1)(iv) (“The Ethanol Family includes fuels composed of at least 50 percent ethanol by volume and their associated fuel additives.”).

Any contrary interpretation of section 211(f) would require EPA to read the phrase “fuel additive” out of the statute and examine only the relationship of the blended fuel (E15) to the certification fuel (E10). Such an interpretation would violate fundamental canons of construction,⁴⁵ and it would be inconsistent with EPA’s treatment of other fuel additives, which—if present in the certification fuel—may be used in market fuel in widely varying concentrations without triggering a sub-sim violation.⁴⁶

Although EPA may no longer control ethanol concentration under the sub-sim law, EPA has other tools at its disposal to limit high concentrations of ethanol (or any other fuel additive) if they are found to cause health problems. Fuel producers can register E16-50 blends as motor vehicle gasoline only after satisfying the registration emission and health-effects testing requirements imposed by EPA.⁴⁷ And EPA can control ethanol blending under section 211(c) of the Clean Air Act if some concentration of ethanol in gasoline “causes, or contributes to, air pollution which may reasonably be anticipated to endanger the public health or welfare” or (2) causes “emissions products” that “impair to a significant degree the performance of any emission control device or system which is [or would soon be] in general use.”⁴⁸

EPA has already exercised its authority under section 211(c) to prohibit the use of gasoline with more than 10% ethanol in “any model year 2000 or older light-duty gasoline motor vehicle, any heavy-duty gasoline motor vehicle or engine, any highway or off-highway motorcycle, or any gasoline-powered nonroad engines, vehicles or equipment.”⁴⁹ That prohibition would continue to apply regardless of how EPA interprets the sub-sim law. And EPA is already required to assess the need for additional fuel regulations to mitigate renewable fuel emissions in its forthcoming Energy Independence and Security Act anti-backsliding study, so interpreting the sub-sim law according to its plain meaning would not impose any significant additional burdens on the Agency.⁵⁰

The D.C. Circuit has rejected EPA’s prior attempt to circumvent section 211(c)’s “very definite scheme” through regulation under section 211(f). In *Ethyl Corp. v. EPA*, the Court rejected EPA’s attempt to deny a sub-sim waiver for a fuel additive under 211(f)(4) because of “concern about the effects on public health that could result if EPA were to” grant such a

⁴⁵ See *Moskal v. United States*, 498 U.S. 103, 109 (1990) (“[A] court should give effect, if possible, to every clause and word of a statute.” (internal quotation marks omitted)).

⁴⁶ For example, the concentration of aromatic hydrocarbons (another octane additive) in gasoline varied between 4% and 40% in market gasoline sampled by the Alliance of Automobile Manufacturers in 2014. Alliance of Automobile Manufacturers, North American Fuel Survey (Summer 2014). This variation is consistent with the sub-sim law, because aromatic hydrocarbons are present in the gasoline certification fuel.

⁴⁷ 40 C.F.R. §§ 79.11(j), 79.32(a)(1)

⁴⁸ 42 U.S.C. § 7545(c)(1).

⁴⁹ 40 C.F.R. § 80.1504(a)(1).

⁵⁰ 42 U.S.C. § 7545(v)(1).

waiver.⁵¹ In rejecting EPA’s claim that it could use section 211(f) to regulate fuels “in the public interest,” the Court observed that the detailed scheme of regulation established by section 211(c) demonstrated that “Congress did not delegate to the Agency the authority to consider other factors ‘in the public interest’ such as public health when acting under section 211(f)(4).”⁵² The current sub-sim waiver for E15 is now out of sync with Congress’s regulatory scheme: no waiver is necessary now that ethanol is a fuel additive used in certification. The E15 waiver is not just superfluous—it imposes a stringent RVP standard on E15 because it erroneously denies that fuel the benefit of the 1 psi RVP waiver. Recognizing that ethanol is now utilized in the gasoline certification fuel and thus no longer controlled by section 211(f) is the simplest way to solve the dilemma created by the existing sub-sim waiver for E15. In the preamble to a rule re-interpreting section 211(h)’s 1 psi RVP waiver to apply to higher ethanol blends, EPA could simply explain the changed factual circumstances that obviate any further ethanol sub-sim waivers under section 211(f).

If EPA’s RVP rulemaking ignores the changed factual predicate to its past control of ethanol concentration under section 211(f)—the replacement of an ethanol-free certification fuel with E10 in 2017—the rule will be susceptible to the argument that it is arbitrary and capricious, because EPA has “entirely failed to consider an important aspect of the problem.”⁵³

B. In the Alternative, EPA Should Redefine “Substantially Similar” To Include E15.

Our next point is an argument in the alternative, and EPA should propose it as an alternative justification for the forthcoming RVP rule: Even if the sub-sim law could be interpreted to limit ethanol content (and for the reasons discussed above, it cannot), EPA should nevertheless update its “substantially similar” definition, in light of the new E10 certification fuel, to include some range of ethanol content up to or exceeding E15.⁵⁴ EPA’s current definition of “substantially similar” for gasoline was last amended in a 1991

⁵¹ 51 F.3d 1053, 1057 (D.C. Cir. 1995).

⁵² *Id.* at 1061; *see also American Methyl Corp. v. EPA*, 749 F.2d 826, 836 (D.C. Cir. 1984) (rejecting EPA’s attempt to revoke a 211(f)(4) waiver as inconsistent with the design of the statute because “section 211(f) forbids the ‘first’ introduction of new fuels and new fuel additives” while “section 211(c) provides for regulation of fuels already in commerce”). EPA has also recognized that if it wants to control fuel and fuel additive emissions, it must do so under 211(c), and not under the guise of interpreting the term “substantially similar” in 211(f)(1). *See* 1980 Definition of Substantially Similar, 45 Fed. Reg. at 67445.

⁵³ *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *see also Bechtel v. FCC*, 957 F.2d 873, 880–81 (D.C. Cir. 1992) (“[C]hanges in factual and legal circumstances may impose upon the agency an obligation to reconsider a settled policy or explain its failure to do so.”).

⁵⁴ EPA previously proposed defining “substantially similar” for gasoline to include blends of up to 12 percent ethanol. EPA did so at a time when there was no ethanol in the standard gasoline certification fuel. *Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program*, 74 Fed. Reg. 24904, 25018–19 (May 26, 2009). The justification for treating such fuel as “substantially similar” is much stronger now that there is 10 percent ethanol in the certification fuel.

interpretive rule that is clearly outdated: it purports to establish a 2.7 percent limit on oxygen content, corresponding to roughly 7.5% ethanol by volume.⁵⁵ But the new E10 gasoline certification fuel contains at least 3.5% oxygen. Thus, the 2.7% oxygen restriction is obsolete and must be revised: at the very least, “substantially similar” must now include E10 and blends similar to E10.

Because the term “substantially similar” is ambiguous, EPA has broad discretion to interpret it to encompass gasoline blends with higher ethanol content as long the interpretation is reasonable and adequately supported by the facts.⁵⁶

There is a strong factual case for concluding that E15 and higher ethanol blends are substantially similar to E10.

First, the chemical and physical properties of E15 and higher ethanol blends are similar to those of the new E10 certification fuel in every sense relevant to emissions controls and performance. When EPA last interpreted “substantially similar” for gasoline, EPA required that the finished fuel possess “the physical and chemical specifications” of ASTM’s then-current standard for gasoline.⁵⁷ E15’s physical and chemical characteristics fully comply with the updated ASTM Standard—ASTM D4814-17.⁵⁸ These changed facts justify finding that E15 is substantially similar to the E10 certification fuel.

Second, when EPA capped the oxygen content of gasoline containing ethanol in the 1980s and early 90s, it did so in order to limit the possible “enleanment” of the air-fuel mixture “which could lead to NO_x emission increases in some cars.”⁵⁹ This rationale has been substantially weakened by technological advances. Most vehicles that are still within their useful life use advanced calibration strategies to tightly control air-fuel ratios and prevent the enleanment of the fuel mixture in order to maintain emissions performance over the useful life of the vehicles.⁶⁰ As EPA concluded in 2011, to comply with Tier 2 and earlier requirements,

⁵⁵ 1991 Definition of Substantially Similar, 56 Fed. Reg. 5352.

⁵⁶ *Cf. Zurich Am. Ins. Grp. v. Duncan on behalf of Duncan*, 889 F.3d 293, 302 (6th Cir. 2018) (holding that the term “substantially similar” used in the Black Lung Benefits Act is ambiguous under the *Chevron* framework).

⁵⁷ *Id.* at 5354–55.

⁵⁸ ASTM, Standard Specification for Automotive Spark-Ignition Engine Fuel, D4814-17, Table 1 (2017); *see generally* API, Determination of the Potential Property Ranges of Mid-Level Ethanol Blends, Final Report, at 1 (Apr. 23, 2010) (“[B]lending ethanol into gasoline at concentrations between 10% and 30% by volume should pose no additional challenge to meeting the volatility requirements in the current ASTM . . . specifications,” with one exception for blends with more than 20% ethanol that *no* longer applies under ASTM 4814-17).

⁵⁹ 1991 Definition of Substantially Similar, 56 Fed. Reg. at 5354. “Enleanment refers to increasing the amount of oxygen in the mixture of air and fuel that enters the engine for combustion.” E15 Partial Waiver, 76 Fed. Reg. at 4669 n.19.

⁶⁰ *See* Georgios Karavalakis, *Impacts of Ethanol Fuel Level on Emissions of Regulated and Unregulated Pollutants from a Fleet of Gasoline Light-Duty Vehicles*, 93 Fuel 549, 551–52 (2012) (finding that “[o]lder technology vehicles” made before 1996 lacked “sophisticated controls of air-fuel ratios at” the levels required to prevent

manufacturers adopted sophisticated technologies that prevent long-term catalyst deterioration and that “allow motor vehicles to operate over E15 without significant changes in exhaust emissions.”⁶¹ Many studies have found that in today’s vehicles, midlevel ethanol blends up to at least E30 have no significant adverse effect on (and can even lower) immediate NO_x emissions, as compared to E10.⁶² An extensive catalyst durability study by the Department of Energy also found no long-term adverse effect on exhaust emissions in vehicles aged with E15 and E20 blends.⁶³ As EPA has noted, the results of this Department of Energy study “provide compelling support for the conclusion that long-term use of E15 will not cause or contribute to” vehicles exceeding exhaust emission standards over their full useful lives.⁶⁴

To be sure, in 2011, EPA also predicted that E15 may still cause “small immediate increases in NO_x emissions” (5 to 10%) in some vehicles due to enleanment.⁶⁵ But EPA also found that “[g]iven the relatively small magnitude of the immediate NO_x emissions increase in relation to the large compliance margins that motor vehicle manufacturers have traditionally built in to the products they certify, and the lack of any significant increase in NO_x emissions deterioration with E15 in comparison to E0, it is reasonable to expect that E15 will not cause or contribute to” vehicles exceeding their emission standards over their full useful life.⁶⁶ Given these findings, EPA’s rationale for limiting the oxygen content of gasoline has been weakened by advances in vehicle control technology and should at a minimum be expanded to encompass E15.

Conclusion

Under the best reading of section 211(h)(4), the 1 psi RVP waiver applies to all fuels containing 10 percent ethanol, including E15. Whether by recognizing that ethanol is now

enleanment with E10, E20, and higher ethanol levels, but showing no statistically significant difference in NO_x emissions for model year 1996 and later vehicles).

⁶¹ E15 Partial Waiver, 76 Fed. Reg. at 4669.

⁶² See, e.g., Carolyn Hubbard et al., *Ethanol and Air Quality: Influence of Fuel Ethanol Content on Emissions and Fuel Economy of Flexible Fuel Vehicles*, 48 Environ. Sci. & Tech. 861, 863 (2014) (finding lower NO_x emissions for E20, E30 and E40 relative to E10); Georgios Karavalakis et al., *Regulated Emissions, Air Toxics, and Particle Emissions from SI-DI Light-Duty Vehicles Operating on Different Iso-Butanol and Ethanol Blends*, SAE Tech. Paper 2014-01-1451, at 6 (finding no statistically significant difference for NO_x emissions between E10, E15, and E20); John M. Storey et al., *Ethanol Blend Effects On Direct Injection Spark-Ignition Gasoline Vehicle Particulate Matter Emissions*, 3 SAE Int. J. Fuels Lubr. 650, 653 (2010) (finding lower NO_x emissions for E20 relative E10); Knoll et al., *Effects of Mid-Level Ethanol Blends on Conventional Vehicle Emissions*, SAE Tech. Paper 2009-01-2723, at 1 (“Vehicles found to apply long-term fuel trim (LTFT) to power-enrichment fueling showed no statistically significant fuel effect on . . . NO_x” when using E15 and E20 instead of E10).

⁶³ Brian H. West et al., *Intermediate Ethanol Blends Catalyst Durability Program D-7* (Feb. 2012) (“[I]t appears reasonable to conclude that the use of ethanol fuels does not change the aging that is observed for NO_x.”).

⁶⁴ E15 Partial Waiver, 76 Fed. Reg. at 4671.

⁶⁵ *Id.* at 4672.

⁶⁶ *Id.*

substantially similar to a certification fuel additive, or by promulgating a new interpretive rule defining “substantially similar” for gasoline, EPA could realize the economic, environmental, and national security benefits of E15 with the 1 psi waiver. Although the first approach is simplest and gives effect to the plain meaning of section 211(f)(1)(B), either would avoid any recourse to the sub-sim waiver process of section 211(f)(4). To strengthen the forthcoming rule against inevitable legal challenges, EPA should adopt both legal rationales as alternative arguments. Equalizing EPA’s RVP standards for E10 and E15 would answer the President’s call to eliminate costly regulatory barriers and to promote clean air, American agriculture, and energy security.

Message

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 12/11/2018 10:09:42 PM
To: Schwab, Justin [Schwab.Justin@epa.gov]
Subject: Re: Meeting Request: RVP
Attachments: Memo re EPA's RVP Strategy 20181207.pdf; RVP Waiver Memo 20181207a.pdf

Sorry about that. Attached.

From: "Schwab, Justin" <Schwab.Justin@epa.gov>
Date: Tuesday, December 11, 2018 at 5:03 PM
To: Adam Gustafson <gustafson@boydengrayassociates.com>
Subject: RE: Meeting Request: RVP

Will try to get back soon on timing. These attachments appear to be identical.

From: Adam Gustafson <gustafson@boydengrayassociates.com>
Sent: Friday, December 7, 2018 11:47 AM
To: Schwab, Justin <schwab.justin@epa.gov>
Subject: Re: Meeting Request: RVP

Justin,

Here are the two memos I mentioned.

The first is a preliminary assessment of the legal strategy that I understand EPA may currently be exploring. I might have some of the details wrong, because I have only heard about EPA's approach second-hand.

The second memo outlines our preferred approach to the RVP rulemaking and explains why EPA must reconsider its past regulation of ethanol concentration under CAA 211(f) now that ethanol is a "fuel additive utilized in . . . certification." You may have seen an earlier version of this.

Here's my availability for the next two weeks:

- Dec. 11, 5pm-7pm
- Dec. 12, 10am-5:30pm
- Dec. 13, 8am-12pm, 2pm-7pm
- Dec. 14, 8am-1:30pm,
- Dec. 18, 11:30am-7pm
- Dec. 19 – morning is possible (may be unavailable)
- Dec. 20 – afternoon is possible (may be unavailable)

Stay healthy!

Adam

From: Adam Gustafson <gustafson@boydengrayassociates.com>

Date: Thursday, December 6, 2018 at 2:33 PM

To: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>, "Schwab, Justin" <Schwab.Justin@epa.gov>, "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>

Cc: "Dominguez, Alexander" <dominguez.alexander@epa.gov>

Subject: Meeting Request: RVP

Dear Mandy, Justin, and Ben,

I'm writing to request a meeting about the forthcoming RVP/E15 rule proposal. We have some concerns about the legal vulnerability of the strategy we understand EPA may be pursuing. We would appreciate an opportunity to talk through that and suggest a multipronged approach that would minimize litigation risk. Are you available December 7, 12, 13, or 18?

I look forward to catching up.

Adam

BOYDEN GRAY & ASSOCIATES PLLC
801 17TH STREET, NW, SUITE 350
WASHINGTON, DC 20006
(202) 955-0620

December 7, 2018

To: Justin Schwab, Deputy General Counsel, Environmental Protection Agency

From: Adam Gustafson, James Conde

Re: Preliminary Analysis of EPA's Strategy for Exempting E15 Blenders from §§ 211(h) and 211(f) of the Clean Air Act

BACKGROUND

The President has directed EPA to allow E15 to be sold year round. The simplest and most defensible way to implement that directive would be to interpret the phrase "fuel blends containing gasoline and 10 percent . . . ethanol" to mean fuel blends containing gasoline and *at least* 10 percent ethanol, as Congress intended.¹ The 9.0 psi RVP limit in the 2011 E15 sub-sim waiver decision should pose no problem because ethanol is now a fuel additive used in certification and therefore requires no sub-sim waiver.²

We understand that EPA is instead considering a rule that would exempt E15 blenders and others downstream of the refinery from the scope of 211(h) and 211(f) of the Clean Air Act.³ We surmise that the proposal contemplated by EPA would consist of two main steps.

RVP Fix. Instead of reinterpreting the 1 psi waiver provisions to cover all blends with at least 10% ethanol, EPA would reinterpret the "deemed to comply" provision of the RVP statute, CAA § 211(h)(4)(1), to allow ethanol blenders and other downstream entities to legally sell higher ethanol blends with an RVP in excess of 9 psi, provided they are blended from an RVP-compliant gasoline and the volume of ethanol does not exceed the concentration allowed by any current sub-sim waiver.⁴ EPA has previously interpreted the "deemed to comply" provision to be limited to E10.⁵ That contradicts the plain text of the provision, which allows blenders to mix compliant gasoline with any amount of ethanol allowed under EPA's sub-sim waivers, including E15. EPA would reinterpret the deemed to comply provision to align it with its plain text. This would allow fuel blenders and retailers (but not refineries) to sell E15 during the summertime even if the 1 psi waiver remains nominally limited to gasoline with 9 to 10% ethanol.

¹ 42 U.S.C. § 7545(h)(4).

² See Memorandum on EPA's Extend the 1 psi RVP Waiver to Midlevel Ethanol Blends (Dec. 7, 2018).

³ 42 U.S.C. §§ 7545(c), 7545(f).

⁴ *Id.* § 7545(h)(4)(1)(A), (B).

⁵ See 76 Fed. Reg. 44,406, 44,434 (July 25, 2011) (asserting that the "deemed to comply" provision "does not apply to ethanol blends greater than 10% by volume."); see also 40 C.F.R. § 80.28(g)(8) (limiting the deemed to comply defense to E10).

Sub-Sim Fix. Reinterpreting the “deemed to comply” provision would not solve an independent problem under the sub-sim law, CAA § 211(f). EPA conditioned its 2011 E15 waiver on the requirement that the “final fuel must have” an RVP “not in excess of 9.0 psi” during the summer season.⁶ Blenders that violate that waiver condition could risk liability for violating the sub-sim law, even if they are deemed to comply with the RVP statute.

To address this problem, we understand that EPA may propose to continue controlling ethanol concentration under the sub-sim law but limit the scope of that law by interpreting the term “manufacturer of any fuel” to exclude ethanol blenders other than refiners and importers. EPA could model this new proposed definition on its existing definition of “fuel manufacturer” that governs the fuel registration requirements. That definition provides that “[a] party (other than a fuel refiner or importer) who adds an oxygenate compound to fuel in any otherwise allowable amount is not thereby considered a fuel manufacturer.”⁷ EPA may propose to apply a similar definition to the sub-sim law while clarifying that E15 is an “otherwise allowable amount” due to the 2011 E15 waiver. That would allow ethanol blenders to produce E15 with an RVP above 9 psi notwithstanding the E15 waiver condition.

PRELIMINARY ANALYSIS

If it survived judicial review, EPA’s proposal would allow E15 blending year round by entities other than refiners and importers. However, the proposal would present several avoidable risks.

First, limiting the effect of the RVP statute through an expansive interpretation of the “deemed to comply” provision may present greater litigation risk than a more straightforward reinterpretation of section 211(h)(4) to apply to all gasoline containing at least 10% ethanol. Opponents of the rule could argue with some plausibility that the “deemed to comply” provision was not intended to expand the scope of the 1 psi waiver provided by Congress. They might say that it was merely intended to provide a simplified compliance mechanism for downstream entities that was consistent with the 1 psi waiver. This tension between EPA’s current (9–10%) interpretation of the RVP 1 psi waiver provision and the actual RVP of market E15 if downstream blenders are exempted from that standard might increase litigation risk.

Second, EPA’s proposed interpretation of “manufacturer of any fuel” in the sub-sim law would imply that any fuel manufacturer who sells gasoline containing more than 15% ethanol violates the sub-sim law. That is significant, because it would require ethanol producers to petition EPA for a waiver under section 211(f)(4) to increase gasoline ethanol content above 15% in the future. Such waivers should not be required now that ethanol is a “fuel additive utilized in . . . certification.” The Clean Air Act provides other mechanisms for regulating the concentration of fuel additives—but only if they cause harm. EPA’s continued reliance on the

⁶ 76 Fed. Reg. 4662, 4682 (Jan. 26, 2011).

⁷ 40 C.F.R. § 79.2(d)(2).

sub-sim statute to control ethanol concentration would ignore “an important aspect of the problem” and increase EPA’s litigation risk. The D.C. Circuit has previously rejected EPA’s attempts to accomplish under the sub-sim statute what it can only do under its general authority to regulate fuel content.⁸

Third, this approach would fail to fully comply with the President’s directive. For several reasons, it would increase legal risks for retailers that produce E15 and midlevel ethanol blends by mixing gasoline and E85 using blender pumps. EPA’s approach would imply that retailers producing midlevel ethanol blends are not blending an “allowable amount” of ethanol. It might also imply that such retailers are fuel manufacturers under the sub-sim law, because they blend gasoline with E85 instead of a pure “oxygenate compound.”⁹ And it would do nothing to address their status as “refiners” who must comply with the RVP regulations—an issue that EPA addressed in the Proposed REGS Rule and that some EPA officials have raised again in the context of the forthcoming RVP rule.¹⁰ A rule that implies using blender pumps to produce E15 is illegal would conflict with the spirit of the President’s directive, since that is how most E15 is produced today.

Fourth, EPA’s approach would not extend to fuel refineries, so they would not be allowed to produce 10 psi E15 at the refinery gate. This could limit E15’s expansion and undermine the goals of the rule.

Based on this preliminary analysis, we recommend that EPA propose other viable alternatives previously endorsed by all of the major stakeholders in the ethanol industry. Specifically, EPA should reinterpret the 1 psi RVP waiver in section 211(h) to apply to all fuels containing at least 10 percent ethanol. As for section 211(f), EPA should propose and finalize two alternative rationales: First, ethanol concentration is no longer controlled by the sub-sim law, because ethanol is a “fuel additive utilized in . . . certification.” Second, even ignoring the statute’s explicit reference to fuel additives to focus exclusively on finished fuels, E15 (or some higher concentration) is substantially similar to the new E10 certification fuel, so no 211(f)(4) waiver is required.

⁸ *Ethyl Corp. v. EPA*, 51 F.3d 1053, 1057 (D.C. Cir. 1995).

⁹ *Cf. id.* § 79.2(d).

¹⁰ *See* 81 Fed. Reg. at 80,842–43; 40 C.F.R. 80.2(h).

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December 7, 2018

To: Justin Schwab, Deputy General Counsel, Environmental Protection Agency

From: Adam Gustafson; James Conde

Re: EPA's Authority To Extend the 1 psi RVP Waiver to Midlevel Ethanol Blends

Most drivers have no access to E15—a cleaner, more cost-effective, and higher octane fuel than the E10 that prevails in the market today—even though E15 has been a legal fuel for several years. In 2011, EPA approved E15 for use in Model Year 2001 and newer vehicles under a waiver pursuant to the “sub-sim” law, section 211(f)(4) of the Clean Air Act.¹ EPA aimed to remove unwarranted regulatory barriers to using biofuels. But that commendable purpose has been frustrated: E15 has failed to achieve widespread market acceptance, because in the past EPA misinterpreted the 1 psi RVP waiver statute, section 211(h)(4), to apply only to gasoline with between 9 and 10 percent ethanol, arbitrarily limiting the times of year in which E15 may be used.

The President has directed EPA to correct this discriminatory and counterproductive regulation of E15. The most straightforward way to accomplish this goal is to give section 211(h)(4) its most logical interpretation and extend the 1 psi RVP waiver to all fuels containing 10 percent ethanol, including E15.² This interpretation of the statute would give effect to Congress's intent and avoid the economically and environmentally detrimental results of EPA's past interpretation. It would also carry out the President's Executive Orders on regulatory costs and outdated rules;³ energy independence and clean air;⁴ and American agriculture and renewable fuels.⁵

¹ *Partial Grant of Clean Air Act Waiver Application Submitted by Growth Energy to Increase the Allowable Ethanol Content of Gasoline to 15 Percent*, 76 Fed. Reg. 4662 (Jan. 26, 2011) (hereinafter E15 Partial Waiver). As discussed below, we believe that the sub-sim law no longer poses any barrier to the use of E15 and higher-level ethanol blends in conventional gasoline vehicles.

² White House Fact Sheet, President Donald J. Trump Is Expanding Waivers for E15 and Increasing Transparency in the RIN Market (Oct. 11, 2018), https://www.whitehouse.gov/briefings-statements/president-donald-j-trump-expanding-waivers-e15-increasing-transparency-rin-market/?utm_source=link.

³ Executive Order 13,771, 82 Fed. Reg. 9339 (Feb. 3, 2017); Executive Order 13,777, § 3(d)(v), 72 Fed. Reg. 12,285 (Mar. 1, 2017).

⁴ Executive Order 13,783, 82 Fed. Reg. 16,093 (Mar. 28, 2017).

⁵ Executive Order 13,790, 82 Fed. Reg. 20237 (Apr. 28, 2017).

I. EPA's Past Interpretation of the 1 psi RVP Waiver Unreasonably Excludes Blends Over E10.

To control fuel volatility, the 1990 Clean Air Act Amendments prohibited the sale of gasoline with Reid Vapor Pressure (RVP) in excess of 9 pounds per square inch (psi).⁶ Recognizing that this standard would impose a substantial burden on gasoline blended with ethanol, Congress simultaneously allowed a 1 psi waiver “[f]or fuel blends containing gasoline and 10 percent denatured anhydrous ethanol.”⁷ This ratified EPA’s preexisting volatility regulations and its allowance of a 1 psi RVP waiver for gasoline containing “at least 9% ethanol.”⁸ EPA’s rule placed no upper limit on the ethanol content of fuel eligible for the 1 psi waiver, but required only that the ethanol content “not exceed any applicable waiver conditions” under the sub-sim law.⁹

In 1991, EPA amended this rule, restricting the 1 psi waiver to gasoline with an ethanol content of “at least 9% and *no more than 10%* (by volume) of the gasoline.”¹⁰ At the time, replacing the reference to “any applicable waiver conditions” with a “no more than 10%” requirement had no immediate practical effect: Ethanol was not present in the certification fuel and was only allowed in the market at a maximum concentration of 10 percent, by virtue of a sub-sim-waiver pursuant to section 211(f)(4).¹¹ Those circumstances have changed with EPA’s approval of the E15 sub-sim waiver in 2011 and the introduction of ethanol into the gasoline certification fuel in 2017. But EPA’s interpretation of section 211(h)(4) is stuck in 1991.

⁶ Clean Air Act Amendments of 1990, § 216, 104 Stat. 2399, 2489 (Nov. 14, 1990), *codified as amended at* 42 U.S.C. § 7545(h)(1) (emphasis added). Reid Vapor Pressure, or RVP, “is a standard measure of fuel volatility at 100°F.” *Renewables Enhancement and Growth Support Rule*, Proposed Rule, 81 Fed. Reg. 80828, 80851 (Nov. 16, 2016) (hereinafter Proposed REGS Rule). “Volatility is a measure of the propensity of a liquid to evaporate.” *Id.*

⁷ Clean Air Act Amendments of 1990, § 216, 104 Stat. 2399, 2490 (Nov. 14, 1990), *codified at* 42 U.S.C. § 7545(h)(4).

⁸ *Volatility Regulations for Gasoline and Alcohol Blends Sold in Calendar Years 1989 and Beyond*, 54 Fed. Reg. 11868, 11884 (Mar. 22, 1989) (hereinafter Phase I Volatility Rule).

⁹ *Id.* Thus, EPA’s regulation provided that higher ethanol blends would qualify for a 1 psi RVP waiver whenever they were substantially similar to a certification fuel or were granted a waiver under the sub-sim law.

¹⁰ *Regulation of Fuels and Fuel Additives: Standards for Gasoline Volatility; and Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines: Standards for Particulate Emissions From Urban Buses*, 56 Fed. Reg. 64704, 64710 (Dec. 12, 1991), *codified at* 40 C.F.R. § 80.27(d)(2) (emphasis added).

¹¹ *See Regulation of Fuels and Fuel Additives: Standards for Gasoline Volatility; and Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines: Standards for Particulate Emissions From Urban Buses*, Proposed Rule, 56 Fed. Reg. 24242, 24245 (May 29, 1991) (“Compliance with the conditions of a fuel waiver under section 211(f)(4) of the CAA requires that the ethanol portion of the gasoline blend cannot lawfully be any greater than 10 percent (by volume).”).

II. EPA Should Reinterpret the 1 psi RVP Waiver Statute to Cover All Fuel Containing 10 Percent Ethanol, Including E15, as the President Has Directed.

A. The 1 psi RVP Waiver Statute Is Not Limited to E10.

During the previous Administration, EPA maintained—for the first time ever—that the 1 psi waiver statute excludes blends with more than 10 percent ethanol, insisting that “a 1 psi RVP waiver was granted by Congress in 1990 to gasoline-ethanol blends of a least 9 volume percent *and no greater than* 10 volume percent ethanol.”¹² But Congress did not limit the waiver to E10. Congress granted a 1 psi RVP waiver to “fuel blends containing gasoline and 10 percent denatured anhydrous ethanol.”¹³ And E15 fuel blends contain gasoline and 10 percent denatured anhydrous ethanol.

This reading is confirmed by the statutory context.¹⁴ When Congress adopted the 1 psi waiver statute, it included a “deemed to comply” provision that provides an affirmative defense for downstream fuel sellers and carriers who can show that, among other things, “the ethanol portion of the fuel blend does not exceed its waiver condition under” section 211(f)(4).¹⁵ E15 blends comply with this requirement: the “ethanol portion” of an E15 blend “does not exceed” the 15 percent ethanol concentration allowed by the 2011 sub-sim waiver that EPA granted under section 211(f)(4). The deemed to comply provision confirms Congress’s intent to extend the 1 psi RVP waiver to *all* blends containing at least 10 percent ethanol, as long as they are consistent with the sub-sim law. Congress could have limited the “deemed to comply” provision to fuel blends with *no more than* 10 percent ethanol; instead, Congress tied it to compliance with section 211(f), which empowers EPA to approve higher levels of ethanol. It was unreasonable for EPA to interpret section 211(h)(4) as limited to E10 when Congress *expressly* referenced EPA’s authority to allow higher ethanol blends into the market.¹⁶

Any notion that Congress intended to limit the 1 psi RVP waiver to E10 was refuted in 2005. In that year, Congress added section 211(h)(5), allowing States to exempt themselves from the 1 psi waiver’s application to “*all* fuel blends containing gasoline and 10 percent

¹² Proposed REGS Rule, 81 Fed. Reg. at 80851 n.95 (emphasis added). For a detailed but unpersuasive explanation of EPA’s past interpretation, see *Regulation to Mitigate the Misfueling of Vehicles and Engines With Gasoline Containing Greater Than Ten Volume Percent Ethanol and Modifications to the Reformulated and Conventional Gasoline Programs*, 76 Fed. Reg. 44406, 44433–35 (July 25, 2011) (hereinafter *Misfueling Rule*).

¹³ 42 U.S.C. § 7545(h)(4).

¹⁴ *Id.*

¹⁵ *Id.* (second sentence).

¹⁶ In the *Misfueling Rule*, EPA asserted that the reference to section 211(f)(4) in the “deemed to comply” provision somehow implies that Congress limited the 1 psi RVP waiver to no more than 10 percent ethanol. 76 Fed. Reg. at 44434. That is illogical. If Congress wanted to limit the 1 psi waiver to E10, it would have specified fuels containing *no more than* 10 percent ethanol, instead of cross-referencing section 211(f)(4), which allowed EPA to approve higher levels of ethanol, as it has done.

denatured anhydrous ethanol.”¹⁷ If the 1 psi waiver applied only to E10 and excluded higher ethanol blends, Congress’s use of the word “all” would have been superfluous.¹⁸

The historical context of section 211(h)(4)’s enactment further confirms that Congress did not restrict the 1 psi RVP waiver to E10. Congress enacted section 211(h) largely to codify EPA’s preexisting regulations on gasoline RVP.¹⁹ Those regulations granted a 1 psi RVP allowance for any blend of “at least 9% ethanol,” with “the maximum ethanol content ... not exceed[ing] any applicable waiver conditions under section 211(f)(4).”²⁰ Thus, under EPA’s preexisting regulations, a higher ethanol blend would have received the 1 psi RVP waiver if EPA approved the increased concentration of ethanol under section 211(f)(4). There is no evidence to suggest that Congress intended to depart from that approach when it enacted 211(h)(4).²¹

To the contrary, the legislative history strongly suggests that Congress did not intend to restrict the 1 psi RVP waiver to E10 blends. The original bill proposed by the Administration (H.R. 3030) would have limited the 1 psi RVP waiver to “gasoline containing at least 9 *but not more than* 10 per centum ethanol (by volume).”²² But Congress *rejected* the Administration’s proposal for a 10 percent ceiling and instead adopted a 10 percent floor. The Senate bill provided for a 1 psi RVP waiver for “gasoline and 10 percent denatured anhydrous ethanol,” but also provided an affirmative defense where the blend complies with “its waiver condition under” 211(f)(4)—thereby making it clear that the waiver could extend to blends with ethanol concentrations greater than ten percent in the future.²³ The House bill would have achieved the same result, though without any compliance defense—it simply provided that the allowance would apply to “gasoline containing *at least* 10 percent ethanol.”²⁴ Congress ultimately adopted the Senate version. Thus, Congress expressly considered and rejected the

¹⁷ Energy Policy Act of 2005, Pub. L. 109-58, § 1501(c), 119 Stat. 594, 1074–75 (2005), *codified at* 42 U.S.C. § 7545(h)(5).

¹⁸ In the Misfueling Rule, EPA said this State exemption provision (section 211(h)(5)) would provide States with no relief from the 1 psi waiver (section 211(h)(4)) if section 211(h)(4) were interpreted to include blends of more than 10 percent ethanol. 76 Fed. Reg. at 44434–35. This argument is circular. Both provisions use the same phrase (“fuel blends containing gasoline and 10 percent denatured anhydrous ethanol”), so the exemption in section 211(h)(5) covers the same class of fuels as the waiver in section 211(h)(4).

¹⁹ See, e.g., Misfueling Rule, 76 Fed. Reg. at 44433 (“Congress largely codified our RVP regulations by adding a new section 211(h).”).

²⁰ 40 C.F.R. § 80.27(d)(2) (1990).

²¹ Since “gasohol” was the only gasoline blend approved under section 211(f)(4) at the time, preamble language referencing gasohol in EPA’s regulations proves nothing.

²² Clean Air Act Amendments, H.R. 3030, 101st Cong., § 214 (1990) 101st Cong., 1st Sess. (July 27, 1989) (emphasis added).

²³ Clean Air Act Amendments, S. 1630, 101st Cong., § 214 (1990) 101st Cong., 1st Sess. (Sept. 14, 1989).

²⁴ See Clean Air Act Amendments, S. 1630 Engrossed Amendment House, 101st Cong., § 216 (1990) 101st Cong., 2nd Sess. (May 23, 1990) (emphasis added); see also H. Rep. 101-490 at 71, 574 (similar).

Administration’s proposal to limit the 1 psi RVP waiver to blends with no more than 10 percent ethanol. “[T]hese actions by Congress . . . preclude an interpretation” that restricts section 211(h)(4) to gasoline with not more than 10 percent ethanol.²⁵

EPA’s past interpretation of 211(h)(4) ignored this legislative history and instead argued (without a citation) that the legislative history “shows that Congress based the 1 psi waiver on technical data indicating that blending gasoline with ethanol so that it contains 9-10% ethanol results in an approximate 1 psi RVP waiver increase.”²⁶ But this does not suggest that Congress wanted blends above E10 to have no RVP waiver at all. And as explained next, it is unreasonable to allow an RVP waiver for E10 but not to higher ethanol blends like E15.

B. EPA’s Past Interpretation of the 1 psi RVP Waiver Statute Violates Congress’s Intent.

EPA’s needlessly restrictive past interpretation of the 1 psi RVP waiver provision is “unmoored from the purposes and concerns” of the Clean Air Act.²⁷ The purpose of section 211(h) is to control the volatility of commercial gasoline.²⁸ But EPA’s past interpretation ensures that only the most volatile gasoline-ethanol blends are sold. As shown in Figure 1 and acknowledged by EPA, “the addition of ethanol to gasoline” above 10 percent ethanol “decreases blend volatility.”²⁹ In addition,

as EPA has recognized, higher ethanol blends lower the reactivity (*i.e.*, the tendency to form ozone) of the resulting emissions.³⁰ By restricting the 1 psi waiver to gasoline with no more

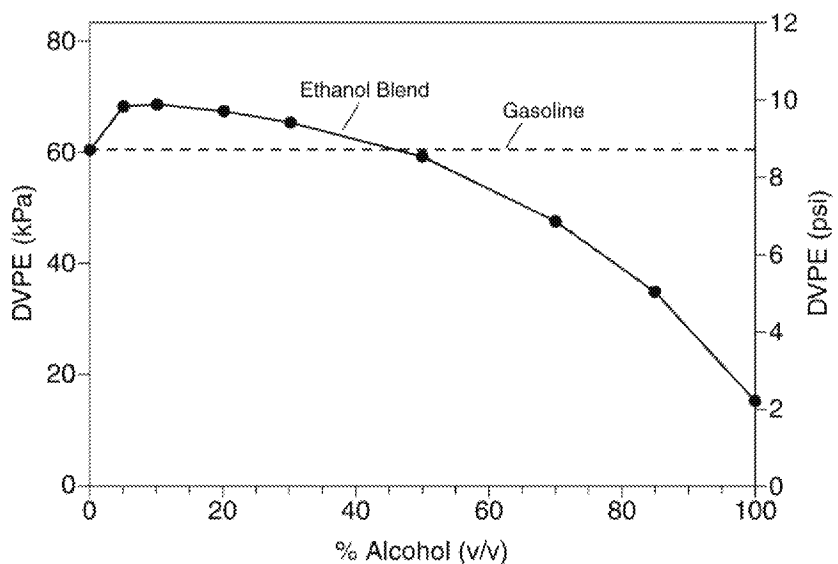


Figure 1. Source: Memorandum from Robert L. McCormick, National Renewable Energy Laboratory, to Kristy Moore, Renewable Fuels Association (Mar. 26, 2012), <http://bit.ly/2oGf3QH>.

²⁵ *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 155 (2000).

²⁶ Misfueling Rule, 76 Fed. Reg. at 44434.

²⁷ *Judulang v. Holder*, 565 U.S. 42, 64 (2011).

²⁸ Congress enacted the volatility program to reduce “commercial gasoline volatility.” S. Rep. No. 101-228, at 109 (1989).

²⁹ Proposed REGS Rule, 81 Fed. Reg. at 80851.

³⁰ See EPA, Report to Congress on Public Health, Air Quality, and Water Resource Impact of Fuel Additive Substitutes for MTBE 63 (Feb. 2009) (“With additional ethanol use, the ethanol content of VOC should

than 10 percent ethanol, EPA's interpretation discourages the sale of a less volatile fuel with less reactive emissions, undermining the objectives of the RVP control program and increasing ozone pollution.

EPA's past interpretation also violates *all* of Congress's purposes in providing a 1 psi waiver for ethanol blends. Congress granted that waiver to achieve the "beneficial environmental, economic, agricultural, energy security and foreign policy implications" of ethanol blending.³¹ Congress determined that a small increase in evaporative emissions was justified by ethanol's countervailing reduction of tailpipe emission: "ethanol burns cleaner than pure hydrocarbon gasoline and thus cause[s] fewer tailpipe emissions."³² Congress recognized that these benefits of ethanol blending could not be achieved without a waiver because of the high "cost of producing and distributing" a "sub-nine pound RVP gasoline" blendstock.³³ Instead of fulfilling Congress's intent, EPA's restrictive interpretation limits the beneficial implications of ethanol blending. It irrationally requires E15 blenders to purchase costly sub-9 psi RVP blendstocks that refiners are unwilling to sell. This imposes prohibitive costs on ethanol blending and unnecessarily limits the "environmental, economic, agricultural, energy security and foreign policy" benefits of increasing ethanol in gasoline.

C. EPA's Past Interpretation of the 1 psi RVP Waiver Statute Irrationally Harms Small Businesses, American Agriculture, and Drivers.

EPA's past interpretation has serious deleterious consequences for American farmers, fuel producers, fuel retailers, and drivers who would benefit from competition among a range of fuels options. Every summer (the period of greatest gasoline demand) nearly a thousand retailers must stop selling E15 because EPA applies a more stringent RVP standard to E15 than it does to E10.³⁴ Small business owners have testified before EPA about the real-world burdens imposed by EPA's interpretation. As the owner of a convenience store in Nevada, Iowa, recently explained:

The only problem I have with the E15 comes every June 1st. On that day, I need to restrict the sales of E15 to flex fuel vehicles only. And on that day, I begin trying to explain to my customers the complex regulations that make the fuel that they buy one day off limits the next day. They are frustrated and I am

increase. Ethanol is less reactive than the average VOC. Therefore, this change should . . . reduce ambient ozone levels.").

³¹ S. Rep. No. 101-228, at 110 (1989).

³² *Id.*

³³ *Id.*

³⁴ EPA, Transcript of Public Hearing, Renewables Enhancement and Growth Support Rule at 25:7-9 (Dec. 6, 2016).

frustrated. And let me tell you, when summer driving season starts, my E15 sales drop like a rock.³⁵

Because EPA's current interpretation of the 1 psi RVP waiver provision is not required by statute, deprives the public of a potential environmental benefit, and harms small business and American agriculture, EPA should revoke that interpretation and affirm that the statutory waiver extends to all gasoline containing 10 percent ethanol, including higher ethanol blends.

III. The Sub-sim Law Does Not Prevent Extending the 1 psi Waiver to Higher Ethanol Blends.

The sub-sim law, section 211(f) of the Clean Air Act, makes it unlawful “to first introduce into commerce, or to increase the concentration in use of, any fuel or fuel additive for use by any person in motor vehicles . . . which is not substantially similar to any fuel or fuel additive utilized” in the certification of new motor vehicles.³⁶

When EPA granted a partial waiver of the sub-sim law for E15 in 2011, it included a requirement that E15 not exceed an RVP of 9 psi during the summer ozone season.³⁷ For two reasons, the sub-sim law should no longer pose any barrier to the extension of the 1 psi RVP waiver to midlevel ethanol blends:

- First, the sub-sim law no longer provides any basis for EPA's control of ethanol content in market fuel, because ethanol is now a fuel additive utilized in certification.
- Second, even if the sub-sim law could somehow be interpreted to limit ethanol content, the Agency should redefine “substantially similar” for gasoline to include midlevel ethanol blends in light of the E10 gasoline certification fuel.

EPA's forthcoming rulemaking to remove the RVP barrier to ethanol blending should adopt both arguments, in the alternative, to reinforce the rule against legal challenges. An RVP rulemaking that ignores presence of ethanol in the certification fuel, and continues to control ethanol concentration under section 211(f), would overlook an important aspect of the problem and invite judicial scrutiny.

A. The Sub-sim Law No Longer Limits Ethanol Concentration.

The sub-sim law prohibits introducing into the market for the first time a new fuel or fuel additive that is “not substantially similar to any fuel or fuel additive utilized in . . . certification,”³⁸ absent a waiver pursuant to section 211(f)(4). The sub-sim statute also makes it

³⁵ *Id.* at 28:15–22, 29:16.

³⁶ 42 U.S.C. § 7545(f)(1)(B).

³⁷ 76 Fed. Reg. 4662, 4682 (Jan. 26, 2011).

³⁸ *Id.*

unlawful to “increase the concentration in use” of certain fuel additives—but, again, only those that are “not substantially similar to any . . . fuel additive utilized in . . . certification.”³⁹ For example, the sub-sim law limits the concentration of fuel additives that had already been “introduce[d] into commerce” at the time of the passage of section 211(f) and yet are not present in certification fuel. The law also makes it unlawful to exceed the “specified concentration” of new fuel additives for which EPA has granted a sub-sim waiver under section 211(f)(4).⁴⁰

Thus, until 2017 it was a violation of section 211(f)(1) to “increase the concentration in use” of ethanol in gasoline beyond 15 percent: Ethanol was not substantially similar to a gasoline certification fuel additive, because the gasoline certification fuel contained no ethanol, and EPA’s sub-sim waiver for E15 was limited to that “specified concentration” of ethanol.

Beginning in 2017, however, the gasoline certification fuel now contains 10 percent ethanol.⁴¹ Whatever range of interpretations it may allow, the term “substantially similar” cannot reasonably be interpreted to *exclude* fuel additives that are *identical* to those used in the relevant certification fuel. Ethanol is a fuel additive used in the gasoline certification fuel,⁴² and just like E10, E15 is “gasoline” fuel under section 211.⁴³ Indeed, as recently as 2016, EPA explained that all gasoline blends containing less than 50% ethanol “are considered gasoline under the EPA’s current [section 211] regulations.”⁴⁴ Because ethanol is a gasoline “fuel additive utilized in . . . certification,” the sub-sim law no longer limits E15.

³⁹ *Id.*

⁴⁰ *Id.* § 7545(f)(4).

⁴¹ *Control of Air Pollution From Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards*, 79 Fed. Reg. 23414, 23810 (Apr. 28, 2014), *codified at* 40 C.F.R. § 1065.710(b)(2).

⁴² EPA’s interpretative rules under the sub-sim law recognize that “aliphatic alcohols,” including ethanol, are gasoline “fuel additives.” *See Fuels and Fuel Additives; Definition of Substantially Similar*, 45 Fed. Reg. 67443, 67447 (Oct. 10, 1980) (hereinafter 1980 Definition of Substantially Similar). This treatment is consistent with EPA’s definition of the term “additive” under section 211: “Additive means any substance, other than one composed solely of carbon and/or hydrogen, that is intentionally added to a fuel named in the designation (including any added to a motor vehicle’s fuel system) and that is not intentionally removed prior to sale or use.” 40 C.F.R. § 79.2(e). It is also consistent with the Agency’s actual practice: ethanol is registered as an unleaded gasoline additive. *See* EPA, List of Registered Gasoline Additives, <https://www3.epa.gov/otaq/fuels1/ffars/web-gas.htm>. Although EPA’s past definitions of substantially similar limited the concentration of some fuel additives to 0.25 percent by weight, aliphatic alcohols have never been subject to that cap. They have instead been subject to an oxygen cap. *Regulation of Fuels and Fuel Additives; Definition of Substantially Similar*, 56 Fed. Reg. 5352, 5355–56 (Feb. 11, 1991) (interpretive rule limiting the oxygen content of gasoline to 2.7 percent by weight, equivalent to significantly less than 10 percent ethanol) (hereinafter 1991 Definition of Substantially Similar).

⁴³ <https://www3.epa.gov/otaq/fuels1/ffars/web-fuel.htm> (listing E15 as registered gasoline fuel).

⁴⁴ *See* Proposed REGS Rule, 81 Fed. Reg. at 80,830; *see also* 40 C.F.R. § 79.56(e)(1)(i) (“The Gasoline Family includes fuels composed of more than 50 percent gasoline by volume and their associated fuel additives.”). Because E85 blends are ethanol fuel, not gasoline, they could not be used in vehicles certified with the gasoline test fuel only. *See id.* § 79.56(e)(1)(iv) (“The Ethanol Family includes fuels composed of at least 50 percent ethanol by volume and their associated fuel additives.”).

Any contrary interpretation of section 211(f) would require EPA to read the phrase “fuel additive” out of the statute and examine only the relationship of the blended fuel (E15) to the certification fuel (E10). Such an interpretation would violate fundamental canons of construction,⁴⁵ and it would be inconsistent with EPA’s treatment of other fuel additives, which—if present in the certification fuel—may be used in market fuel in widely varying concentrations without triggering a sub-sim violation.⁴⁶

Although EPA may no longer control ethanol concentration under the sub-sim law, EPA has other tools at its disposal to limit high concentrations of ethanol (or any other fuel additive) if they are found to cause health problems. Fuel producers can register E16-50 blends as motor vehicle gasoline only after satisfying the registration emission and health-effects testing requirements imposed by EPA.⁴⁷ And EPA can control ethanol blending under section 211(c) of the Clean Air Act if some concentration of ethanol in gasoline “causes, or contributes to, air pollution which may reasonably be anticipated to endanger the public health or welfare” or (2) causes “emissions products” that “impair to a significant degree the performance of any emission control device or system which is [or would soon be] in general use.”⁴⁸

EPA has already exercised its authority under section 211(c) to prohibit the use of gasoline with more than 10% ethanol in “any model year 2000 or older light-duty gasoline motor vehicle, any heavy-duty gasoline motor vehicle or engine, any highway or off-highway motorcycle, or any gasoline-powered nonroad engines, vehicles or equipment.”⁴⁹ That prohibition would continue to apply regardless of how EPA interprets the sub-sim law. And EPA is already required to assess the need for additional fuel regulations to mitigate renewable fuel emissions in its forthcoming Energy Independence and Security Act anti-backsliding study, so interpreting the sub-sim law according to its plain meaning would not impose any significant additional burdens on the Agency.⁵⁰

The D.C. Circuit has rejected EPA’s prior attempt to circumvent section 211(c)’s “very definite scheme” through regulation under section 211(f). In *Ethyl Corp. v. EPA*, the Court rejected EPA’s attempt to deny a sub-sim waiver for a fuel additive under 211(f)(4) because of “concern about the effects on public health that could result if EPA were to” grant such a

⁴⁵ See *Moskal v. United States*, 498 U.S. 103, 109 (1990) (“[A] court should give effect, if possible, to every clause and word of a statute.” (internal quotation marks omitted)).

⁴⁶ For example, the concentration of aromatic hydrocarbons (another octane additive) in gasoline varied between 4% and 40% in market gasoline sampled by the Alliance of Automobile Manufacturers in 2014. Alliance of Automobile Manufacturers, North American Fuel Survey (Summer 2014). This variation is consistent with the sub-sim law, because aromatic hydrocarbons are present in the gasoline certification fuel.

⁴⁷ 40 C.F.R. §§ 79.11(j), 79.32(a)(1)

⁴⁸ 42 U.S.C. § 7545(c)(1).

⁴⁹ 40 C.F.R. § 80.1504(a)(1).

⁵⁰ 42 U.S.C. § 7545(v)(1).

waiver.⁵¹ In rejecting EPA’s claim that it could use section 211(f) to regulate fuels “in the public interest,” the Court observed that the detailed scheme of regulation established by section 211(c) demonstrated that “Congress did not delegate to the Agency the authority to consider other factors ‘in the public interest’ such as public health when acting under section 211(f)(4).”⁵² The current sub-sim waiver for E15 is now out of sync with Congress’s regulatory scheme: no waiver is necessary now that ethanol is a fuel additive used in certification. The E15 waiver is not just superfluous—it imposes a stringent RVP standard on E15 because it erroneously denies that fuel the benefit of the 1 psi RVP waiver. Recognizing that ethanol is now utilized in the gasoline certification fuel and thus no longer controlled by section 211(f) is the simplest way to solve the dilemma created by the existing sub-sim waiver for E15. In the preamble to a rule re-interpreting section 211(h)’s 1 psi RVP waiver to apply to higher ethanol blends, EPA could simply explain the changed factual circumstances that obviate any further ethanol sub-sim waivers under section 211(f).

If EPA’s RVP rulemaking ignores the changed factual predicate to its past control of ethanol concentration under section 211(f)—the replacement of an ethanol-free certification fuel with E10 in 2017—the rule will be susceptible to the argument that it is arbitrary and capricious, because EPA has “entirely failed to consider an important aspect of the problem.”⁵³

B. In the Alternative, EPA Should Redefine “Substantially Similar” To Include E15.

Our next point is an argument in the alternative, and EPA should propose it as an alternative justification for the forthcoming RVP rule: Even if the sub-sim law could be interpreted to limit ethanol content (and for the reasons discussed above, it cannot), EPA should nevertheless update its “substantially similar” definition, in light of the new E10 certification fuel, to include some range of ethanol content up to or exceeding E15.⁵⁴ EPA’s current definition of “substantially similar” for gasoline was last amended in a 1991

⁵¹ 51 F.3d 1053, 1057 (D.C. Cir. 1995).

⁵² *Id.* at 1061; *see also American Methyl Corp. v. EPA*, 749 F.2d 826, 836 (D.C. Cir. 1984) (rejecting EPA’s attempt to revoke a 211(f)(4) waiver as inconsistent with the design of the statute because “section 211(f) forbids the ‘first’ introduction of new fuels and new fuel additives” while “section 211(c) provides for regulation of fuels already in commerce”). EPA has also recognized that if it wants to control fuel and fuel additive emissions, it must do so under 211(c), and not under the guise of interpreting the term “substantially similar” in 211(f)(1). *See* 1980 Definition of Substantially Similar, 45 Fed. Reg. at 67445.

⁵³ *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *see also Bechtel v. FCC*, 957 F.2d 873, 880–81 (D.C. Cir. 1992) (“[C]hanges in factual and legal circumstances may impose upon the agency an obligation to reconsider a settled policy or explain its failure to do so.”).

⁵⁴ EPA previously proposed defining “substantially similar” for gasoline to include blends of up to 12 percent ethanol. EPA did so at a time when there was no ethanol in the standard gasoline certification fuel. *Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program*, 74 Fed. Reg. 24904, 25018–19 (May 26, 2009). The justification for treating such fuel as “substantially similar” is much stronger now that there is 10 percent ethanol in the certification fuel.

interpretive rule that is clearly outdated: it purports to establish a 2.7 percent limit on oxygen content, corresponding to roughly 7.5% ethanol by volume.⁵⁵ But the new E10 gasoline certification fuel contains at least 3.5% oxygen. Thus, the 2.7% oxygen restriction is obsolete and must be revised: at the very least, “substantially similar” must now include E10 and blends similar to E10.

Because the term “substantially similar” is ambiguous, EPA has broad discretion to interpret it to encompass gasoline blends with higher ethanol content as long the interpretation is reasonable and adequately supported by the facts.⁵⁶

There is a strong factual case for concluding that E15 and higher ethanol blends are substantially similar to E10.

First, the chemical and physical properties of E15 and higher ethanol blends are similar to those of the new E10 certification fuel in every sense relevant to emissions controls and performance. When EPA last interpreted “substantially similar” for gasoline, EPA required that the finished fuel possess “the physical and chemical specifications” of ASTM’s then-current standard for gasoline.⁵⁷ E15’s physical and chemical characteristics fully comply with the updated ASTM Standard—ASTM D4814-17.⁵⁸ These changed facts justify finding that E15 is substantially similar to the E10 certification fuel.

Second, when EPA capped the oxygen content of gasoline containing ethanol in the 1980s and early 90s, it did so in order to limit the possible “enleanment” of the air-fuel mixture “which could lead to NO_x emission increases in some cars.”⁵⁹ This rationale has been substantially weakened by technological advances. Most vehicles that are still within their useful life use advanced calibration strategies to tightly control air-fuel ratios and prevent the enleanment of the fuel mixture in order to maintain emissions performance over the useful life of the vehicles.⁶⁰ As EPA concluded in 2011, to comply with Tier 2 and earlier requirements,

⁵⁵ 1991 Definition of Substantially Similar, 56 Fed. Reg. 5352.

⁵⁶ *Cf. Zurich Am. Ins. Grp. v. Duncan on behalf of Duncan*, 889 F.3d 293, 302 (6th Cir. 2018) (holding that the term “substantially similar” used in the Black Lung Benefits Act is ambiguous under the *Chevron* framework).

⁵⁷ *Id.* at 5354–55.

⁵⁸ ASTM, Standard Specification for Automotive Spark-Ignition Engine Fuel, D4814-17, Table 1 (2017); *see generally* API, Determination of the Potential Property Ranges of Mid-Level Ethanol Blends, Final Report, at 1 (Apr. 23, 2010) (“[B]lending ethanol into gasoline at concentrations between 10% and 30% by volume should pose no additional challenge to meeting the volatility requirements in the current ASTM . . . specifications,” with one exception for blends with more than 20% ethanol that *no* longer applies under ASTM 4814-17).

⁵⁹ 1991 Definition of Substantially Similar, 56 Fed. Reg. at 5354. “Enleanment refers to increasing the amount of oxygen in the mixture of air and fuel that enters the engine for combustion.” E15 Partial Waiver, 76 Fed. Reg. at 4669 n.19.

⁶⁰ *See* Georgios Karavalakis, *Impacts of Ethanol Fuel Level on Emissions of Regulated and Unregulated Pollutants from a Fleet of Gasoline Light-Duty Vehicles*, 93 Fuel 549, 551–52 (2012) (finding that “[o]lder technology vehicles” made before 1996 lacked “sophisticated controls of air-fuel ratios at” the levels required to prevent

manufacturers adopted sophisticated technologies that prevent long-term catalyst deterioration and that “allow motor vehicles to operate over E15 without significant changes in exhaust emissions.”⁶¹ Many studies have found that in today’s vehicles, midlevel ethanol blends up to at least E30 have no significant adverse effect on (and can even lower) immediate NO_x emissions, as compared to E10.⁶² An extensive catalyst durability study by the Department of Energy also found no long-term adverse effect on exhaust emissions in vehicles aged with E15 and E20 blends.⁶³ As EPA has noted, the results of this Department of Energy study “provide compelling support for the conclusion that long-term use of E15 will not cause or contribute to” vehicles exceeding exhaust emission standards over their full useful lives.⁶⁴

To be sure, in 2011, EPA also predicted that E15 may still cause “small immediate increases in NO_x emissions” (5 to 10%) in some vehicles due to enleanment.⁶⁵ But EPA also found that “[g]iven the relatively small magnitude of the immediate NO_x emissions increase in relation to the large compliance margins that motor vehicle manufacturers have traditionally built in to the products they certify, and the lack of any significant increase in NO_x emissions deterioration with E15 in comparison to E0, it is reasonable to expect that E15 will not cause or contribute to” vehicles exceeding their emission standards over their full useful life.⁶⁶ Given these findings, EPA’s rationale for limiting the oxygen content of gasoline has been weakened by advances in vehicle control technology and should at a minimum be expanded to encompass E15.

Conclusion

Under the best reading of section 211(h)(4), the 1 psi RVP waiver applies to all fuels containing 10 percent ethanol, including E15. Whether by recognizing that ethanol is now

enleanment with E10, E20, and higher ethanol levels, but showing no statistically significant difference in NO_x emissions for model year 1996 and later vehicles).

⁶¹ E15 Partial Waiver, 76 Fed. Reg. at 4669.

⁶² See, e.g., Carolyn Hubbard et al., *Ethanol and Air Quality: Influence of Fuel Ethanol Content on Emissions and Fuel Economy of Flexible Fuel Vehicles*, 48 Environ. Sci. & Tech. 861, 863 (2014) (finding lower NO_x emissions for E20, E30 and E40 relative to E10); Georgios Karavalakis et al., *Regulated Emissions, Air Toxics, and Particle Emissions from SI-DI Light-Duty Vehicles Operating on Different Iso-Butanol and Ethanol Blends*, SAE Tech. Paper 2014-01-1451, at 6 (finding no statistically significant difference for NO_x emissions between E10, E15, and E20); John M. Storey et al., *Ethanol Blend Effects On Direct Injection Spark-Ignition Gasoline Vehicle Particulate Matter Emissions*, 3 SAE Int. J. Fuels Lubr. 650, 653 (2010) (finding lower NO_x emissions for E20 relative E10); Knoll et al., *Effects of Mid-Level Ethanol Blends on Conventional Vehicle Emissions*, SAE Tech. Paper 2009-01-2723, at 1 (“Vehicles found to apply long-term fuel trim (LTFT) to power-enrichment fueling showed no statistically significant fuel effect on . . . NO_x” when using E15 and E20 instead of E10).

⁶³ Brian H. West et al., *Intermediate Ethanol Blends Catalyst Durability Program D-7* (Feb. 2012) (“[I]t appears reasonable to conclude that the use of ethanol fuels does not change the aging that is observed for NO_x.”).

⁶⁴ E15 Partial Waiver, 76 Fed. Reg. at 4671.

⁶⁵ *Id.* at 4672.

⁶⁶ *Id.*

substantially similar to a certification fuel additive, or by promulgating a new interpretive rule defining “substantially similar” for gasoline, EPA could realize the economic, environmental, and national security benefits of E15 with the 1 psi waiver. Although the first approach is simplest and gives effect to the plain meaning of section 211(f)(1)(B), either would avoid any recourse to the sub-sim waiver process of section 211(f)(4). To strengthen the forthcoming rule against inevitable legal challenges, EPA should adopt both legal rationales as alternative arguments. Equalizing EPA’s RVP standards for E10 and E15 would answer the President’s call to eliminate costly regulatory barriers and to promote clean air, American agriculture, and energy security.

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 5/31/2018 10:15:10 PM
To: Schwab, Justin [Schwab.Justin@epa.gov]
Subject: Re: Lifecycle analysis
Attachments: 2-23-18 LCA update request letter to Pruitt.pdf; 3-26-18 USEPA response letter RE LCA update request letter to Pruitt from NCGA and 18 states.pdf; UAI Comment on 2018 RFS Rule.pdf

Justin,

Thank you for your time today. Here is the letter I mentioned concerning lifecycle analysis in the Triennial Report to Congress from several state corn growers associations and the National Corn Growers Association.

The second attachment is a response from Karl Simon at OTAQ.

We appreciate Mr. Simon's acknowledgement that "new research since the 2010 LCA has improved our understanding of biofuel lifecycle GHG emissions," and we are glad that his letter does not rule out the possibility of an updated lifecycle analysis in the forthcoming Triennial Report to Congress.

But the overall thrust of Mr. Simon's letter gives the impression that OTAQ has no intention of updating its lifecycle analysis. Indeed, that is what OTAQ told EPA's Inspector General in 2016. The IG noted that "ensuring the GHG lifecycle analysis is current could provide other benefits, such as informing EPA's decisions on setting RFS volumes after 2022." (IG Report No. 16-P-0275, at 9). Lifecycle analysis is also relevant to the mandatory consideration of "climate change" in any reset of the statutory volumes before 2022. 42 U.S.C. § 7545(o)(2)(B)(ii), *cited in* 42 U.S.C. § 7545(o)(7)(F).

Mr. Simon's letter seems to be based on some significant misunderstandings:

- Both the Department of Energy's GREET model and USDA's study include land-use change emissions, as required by the Clean Air Act's definition of "lifecycle greenhouse gas emissions." 42 U.S.C. § 7545(o)(1)(H).
- That law does not require any particular methodology, and USDA's report uses the same lifecycle emission categories as EPA's 2010 lifecycle analysis.
- Mr. Simon says that "given the inherent uncertainty associated with modeling of indirect emissions, the overall conclusions we can draw from this body of modelling have not changed." To the contrary, new empirical data proves that EPA's modeling grossly overestimated corn ethanol's effect on indirect land-use change and other factors. The third attachment is our comments addressing this new data.
- The GTAP-BIO model has been updated significantly since EPA declined to use it in 2010. By contrast, EPA's own land-use change model has not been revised, despite contrary evidence.

- Mr. Simon's view that EPA's lifecycle analysis "may not apply to other situations or policies" has not stopped foreign countries from restricting their imports of U.S. ethanol based on EPA's outdated science.

Thanks again.

Adam

From: Adam Gustafson <gustafson@boydengrayassociates.com>
Date: Thursday, May 31, 2018 at 10:07 AM
To: "Schwab, Justin" <Schwab.Justin@epa.gov>
Subject: Re: Lifecycle analysis

Will do. Here is a 3-page memo.

From: "Schwab, Justin" <Schwab.Justin@epa.gov>
Date: Thursday, May 31, 2018 at 10:03 AM
To: Adam Gustafson <gustafson@boydengrayassociates.com>
Subject: RE: Lifecycle analysis

If you call me that'll probably be best. There is one looming issue that could ripen in which case we will have to reschedule, but I am hopeful that will not happen.

From: Adam Gustafson [mailto:gustafson@boydengrayassociates.com]
Sent: Thursday, May 31, 2018 8:16 AM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: Re: Lifecycle analysis

I look forward to it. Shall I meet you in your office or call you at that number?

Get [Outlook for Android](#)

From: Schwab, Justin <Schwab.Justin@epa.gov>
Sent: Thursday, May 31, 2018 8:08:13 AM
To: Adam Gustafson
Subject: RE: Lifecycle analysis

Hello, Adam. I could talk between 2 and 3. The best number to reach my is my government cell (Ex. 6)

From: Adam Gustafson [mailto:gustafson@boydengrayassociates.com]
Sent: Wednesday, May 30, 2018 5:26 PM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: Lifecycle analysis

Justin,

Stephen mentioned that he spoke with you about lifecycle analysis recently and recommended that I follow up with you. Do you have any time available tomorrow (Thursday) after 2pm or just about any time Tuesday-Friday next week? I look forward to catching up.

Adam

Ex. 6

February 23, 2018

Administrator Scott Pruitt
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

Dear Administrator Pruitt:

We respectfully request the Environmental Protection Agency (EPA) adopt an updated lifecycle analysis for corn ethanol. EPA's lifecycle analysis was originally established in 2009 and published in the regulatory impact analysis to a 2010 Renewable Fuel Standard (RFS) rule; this analysis does not reflect improvements in corn and ethanol production since then. Adopting an updated analysis would help fulfill the Trump Administration's pledge to rely on sound science and transparency. Over the last eight years, our organizations and others appealed to the previous administration and the career experts at EPA to update these numbers to no avail.

EPA's forthcoming Triennial Report to Congress offers a new opportunity for the Agency to correct these outdated estimates and take advantage of recent lifecycle analysis updates completed by other federal agencies and university researchers. The U.S. Department of Energy (DOE), through Argonne National Laboratory, and the U.S. Department of Agriculture have both been working on updating the input data for corn and ethanol production, improving models, vetting the results, and using the latest analytical resources to develop the most accurate lifecycle numbers possible. Many universities such as Purdue, the University of Illinois at Chicago, and Iowa State show similar improvements. Most of these recent modeling results have been published in peer-reviewed journals.

While lifecycle analysis for corn ethanol may seem less important now for the administration of the RFS, the lifecycle values of biofuels have become very important in global ethanol export markets. EPA's outdated life cycle estimates may now seriously impact corn ethanol exports to foreign markets such as Japan, Brazil, Europe, and South Korea, which are establishing their own greenhouse gas (GHG) standards and/or evaluating ethanol imports based on EPA's outdated lifecycle numbers. Specifically, in the short term, if these numbers are not updated, the United States risks losing export opportunities to competing sugarcane ethanol from Brazil.

For example, the United States recently had the opportunity to compete for ethanol as a feedstock for ETBE exports to Japan. The U.S. Grains Council (in cooperation with agribusiness groups, ethanol organizations, and with university input) demonstrated the significant improvements in the lifecycle emissions of corn ethanol over the past decade, using both the USDA lifecycle analysis estimates and the DOE Argonne model. Due to the differences in the more recent lifecycle analysis from USDA and the outdated estimates from EPA, the U.S. ethanol industry spent additional resources to educate the Japanese authorities on the discrepancies between the USDA and EPA lifecycle analyses. Ultimately, Japanese authorities

accepted the USDA methodology. Attached to this letter is a table used in Japan's original analysis of corn-based ethanol.

As you may know, Brazil became our largest foreign market for corn ethanol in 2016 and remained our largest market in 2017, importing 446 million gallons. Unfortunately, in a move to limit U.S. access to its market, Brazil has implemented a tariff rate quota (TRQ) for ethanol imports. With the TRQ, a tariff is applied to purchases from the U.S. after a 150 million liter (39.6 million gallon) per quarter quota is met.

The original argument for a tariff was based on Brazil's purported interest in reducing carbon emissions from fuel. Brazilian regulators used the 2010 study from the EPA website to arrive at an estimated duty rate slightly below 20 percent. If Brazil had used figures from the USDA study released in December 2016, the same Brazilian formula results in a tariff of just 2.7 percent. The outdated EPA numbers hold the potential to reduce ethanol export opportunities and negatively impact U.S. jobs and the rural economy.

Outdated data and poor models could cause the U.S. corn and ethanol producers to lose market access. These losses will further the economic crisis for corn growers currently struggling with stagnant demand and low prices. Countries that are establishing carbon standards realize that blending ethanol has major GHG reducing impacts and will move to encourage its usage. GHG criteria are important to work the U.S. ethanol industry is carrying out in Colombia, Japan, the EU, and Canada. We expect even more countries will examine the GHG reducing properties of ethanol over the next few years, but they will not choose U.S. ethanol when they rely on the 2010 EPA lifecycle analysis.

We encourage your agency to adopt either DOE/Argonne's latest published results or USDA's recently reported data. We would also be pleased to work with you and your staff to provide information regarding improvements in corn production to help inform EPA's forthcoming Triennial Report.

Sincerely,

Mike Lefever
Colorado Corn Administrative Committee President

Dave Eckhardt
Colorado Corn Growers Association President

Aron Carlson
Illinois Corn Growers Association President

Paul Jeschke
Illinois Corn Marketing Board Chairman

Sarah Delbecq
Indiana Corn Growers Association President

Mark Recker
Iowa Corn Growers Association President

Dennis McNinch
Kansas Corn Commission Chairman

Ken McCauley
Kansas Corn Growers Association President

Mark Roberts
Kentucky Corn Growers Association

Jason McConnachie
Michigan Corn Growers Association President

Kirby Hettver
Minnesota Corn Growers Association President

Kyle Kirby
Missouri Corn Growers Association President

David Merrell
Nebraska Corn Board Chairman

Dan Wesely
Nebraska Corn Growers Association President

Carson Klosterman
North Dakota Corn Growers Association President

Jed Bower
Ohio Corn and Wheat Growers Association President

Troy Knecht
South Dakota Corn Growers Association President

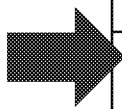
Casey Kelleher
Wisconsin Corn Growers Association President

Kevin Skunes
National Corn Growers Association President

Encl.: Basic Concepts of GHG Emission Reduction Requirement
cc: Secretary Sonny Perdue, U.S. Department of Agriculture
Secretary Rick Perry, U.S. Department of Energy

Basic Concepts of GHG Emission Reduction Requirement

- It is important to establish the GHG emission reduction requirement that is at least targeting CO₂ reduction not weaker than other countries, and that possess sufficient effects from the point of efficient biomass utilization.
- Taking into consideration availability of biofuel meeting the requirement, it is decided to be up from 50% gasoline equivalent to 55% gasoline equivalent.

		Values when the current requirements were established (2011)	At present (January 1, 2018 for EU)
<div>Europe and the U.S.</div> 	Europe (RED)	35%	50% (Plant built before October 5, 2015) 60% (Plant built before October 5, 2015)
	UK (RTFO)	50%	Same as RED
	US (RFS2)	Existing: 20% Next generation: 50-60%	No changes of the requirements but the target volume of advanced biofuel introduction has been increasing
Japan	GHG emission reduction by woodchip biomass generation	42.8 gCO ₂ /MJ (52.4% reduction compared with gasoline)	47.5 gCO ₂ /MJ (56.5% reduction compared with gasoline)
	Available biofuel	Brazil	Brazil U.S. (domestic next generation)

Summary on the Concept of Proposed Standards (Public Notice) for the Next Policy

- The term for the next policy will be 5 years (2018-2022) with the target volume of bioethanol introduction will be 500,000 KL gasoline equivalent each year.
- The new LCA assessment value for GHG emission (standard value) for U.S. corn bioethanol will be newly established.
- The GHG emission reduction requirement will be raised from 50% gasoline equivalent to 55% gasoline equivalent, in order that at least targets CO₂ reduction not weaker than other countries, and that possesses sufficient effects from the point of efficient biomass utilization.
- From the point of view of competition with food crops and self-sufficiency, development of domestic next generation biofuel will be continued.
- The target volume and required policy will be determined in the next minor revision scheduled to be early 2020.

The treatment of biodiesel and other biofuel will continue to be discussed.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

RECEIVED
APR 04 2018

MAR 26 2018

BY:

OFFICE OF
AIR AND RADIATION

Ms. Tricia Braid
Illinois Corn Communications Director
14129 Carole Drive
Bloomington, Illinois 61705

Dear Ms. Braid:

Thank you for your letter of February 23, 2018, on behalf of 19 signators to U.S. Environmental Protection Agency Administrator E. Scott Pruitt requesting that EPA adopt an updated analysis of the lifecycle greenhouse gas (GHG) emissions associated with corn starch ethanol. The Administrator requested that I respond on his behalf.

The Office of Transportation and Air Quality is responsible for implementing the Renewable Fuel Standard (RFS) program, including evaluation of biofuel lifecycle GHG emissions. Your letter says that EPA's lifecycle analysis of corn ethanol for the March 2010 Renewable Fuel Standard (RFS) rule (the "2010 LCA") is outdated and needs to be updated to reflect improvements in corn and ethanol production. However, for many of the reasons alluded to in your letter, the direct impacts of modifying our corn starch LCA on the RFS program may be quite limited due to the "grandfathering" exemptions and other definitions contained in the Clean Air Act (CAA):

- **The vast majority of corn starch ethanol currently produced in the U.S. is exempt from the 20 percent GHG reduction requirement to qualify as renewable fuel.¹ CAA 211(o)(2)(A)(i) and 40 CFR 80.1403(d) exempt from the GHG requirements renewable fuel produced at facilities that commenced construction after December 19, 2007, or at ethanol plants fired by natural gas or biomass that commenced construction prior to December 31, 2009.**
- **Modifying the 2010 LCA would have no direct impact on the RFS status of existing ethanol plants, even those that are not grandfathered.** Under CAA 211(o)(4)(G), any change in analytical methodology compared to the 2010 LCA, "shall only apply to renewable fuel from facilities that commence construction after the effective date of such adjustment, revision, or change."

¹ In 2017, 14.86 billion RINs were generated for conventional (D-code 6) ethanol. Technically, not all of this ethanol was produced from corn starch (it could be from other starches such as sorghum). Of those 14.86 billion RINs, 13.24 billion or 89% were generated using a grandfathered pathway.

- **The vast majority of corn starch ethanol already qualifies for the only RFS fuel category for which it is eligible.** The definition of advanced biofuel at CAA 211(o)(1)(B)(i) excludes “ethanol derived from corn starch.” As described above, a large volume of ethanol is exempt from the GHG requirements to qualify as renewable fuel. Many producers who are expanding beyond their grandfathered baseline capacity have been approved under our expedited Efficient Producer Petition Process.²

While we appreciate the point raised in your letter that other countries may use EPA’s analysis to justify tariffs or limit exports from the U.S., it is important to note that the 2010 LCA was designed to meet the requirements specified in the CAA. The CAA definition of lifecycle greenhouse gas emissions includes “significant indirect emissions such as significant emissions from land use changes.” The scenarios considered for the 2010 LCA were specifically designed to evaluate corn starch ethanol used under the RFS program, and may not apply to other situations or policies. Other countries or jurisdictions reviewing EPA’s 2010 LCA as part of their policy formation should do so carefully and appreciate its original purpose and scope. Your letter encourages EPA to adopt either “DOE/Argonne’s latest published results or USDA’s recently reported data.” Both of these studies rely on the GTAP-BIO model to estimate indirect land use change (ILUC) GHG emissions associated with corn ethanol. For many of the reasons described in the March 2010 rulemaking, we continue to believe there are important limitations of the GTAP-BIO model that make it ill-suited for conducting the type of lifecycle analysis required under the CAA. We also note that the USDA report and the DOE/Argonne analyses used a different methodology than EPA’s 2010 LCA, and it is not clear whether those studies satisfy the definition of lifecycle GHG emissions required by the CAA.

EPA continues to monitor the science regarding lifecycle GHG emissions associated with biofuels. Overall, new research since the 2010 LCA has improved our understanding of biofuel lifecycle GHG emissions, but given the inherent uncertainty associated with modeling of indirect emissions, the overall conclusions we can draw from this body of modelling have not changed. As we do lifecycle assessments for new fuel pathways, the most recent science and data are incorporated where possible. For example, EPA has updated the analysis to reflect new data on forest carbon stocks, projected yields, and agricultural inputs as appropriate. Our analyses have also incorporated advances in process technology efficiencies as biofuel facilities demonstrate improvements in their GHG emissions.

Your letter states that EPA’s forthcoming Triennial Report to Congress “offers a new opportunity” to update our LCA of corn ethanol. The Agency is currently working to complete, in the spring of 2018, the report to Congress required under Section 204 of the Energy Independence and Security Act of 2007 (EISA). It is too early to comment on the contents of the forthcoming report.

² For more information on the Efficient Producer Petition Process, see: <https://www.epa.gov/renewable-fuel-standard-program/how-prepare-efficient-producer-petition-under-renewable-fuel>

Thank you for your continued interest in RFS program. Please do not hesitate to contact me if you have any questions regarding this matter.

Sincerely,

A handwritten signature in black ink, appearing to read 'K. Simon', with a stylized flourish extending to the right.

Karl Simon, Director
Transportation and Climate Division

Comments of
URBAN AIR INITIATIVE,
CLEAN FUELS DEVELOPMENT COALITION, 25x'25 ALLIANCE,
NEBRASKA ETHANOL BOARD, and
NEBRASKA ETHANOL INDUSTRY COALITION

On the U.S. Environmental Protection Agency's Proposed Rule

RENEWABLE FUEL STANDARD PROGRAM:
STANDARDS FOR 2018
AND BIOMASS-BASED DIESEL VOLUME FOR 2019

Docket ID No. EPA-HQ-OAR-2017-0091

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EXECUTIVE SUMMARY

Urban Air Initiative, Clean Fuels Development Coalition, 25x'25 Alliance, Nebraska Ethanol Board, and Nebraska Ethanol Industry Coalition (Commenters) respectfully submit these comments on the United States Environmental Protection Agency's Proposed Rule: *Renewable Fuel Standard Program: Standards for 2018*. In the Proposed Rule, EPA continues to ignore new data concerning ethanol's lifecycle emissions of greenhouse gases (GHG). EPA last conducted a lifecycle analysis (LCA) in its regulatory impact analysis accompanying the 2010 Renewable Fuel Standard (RFS) Rule. Seven years later, EPA continues to rely on its outdated 2010 LCA to meet its cost-benefit analysis obligations and to approve pathways under the RFS.

Despite EPA's recognition that the Proposed Rule is "an economically significant regulatory action," EPA admits that it "ha[s] not quantified benefits for the 2018 proposed standards." EPA is required by Executive Order to "use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible." But the Proposed Rule offers merely an "illustrative" analysis of costs limited to wholesale fuel costs and justifies its failure to conduct a full cost-benefit analysis by pointing to the 2010 LCA. This does not satisfy EPA's cost-benefit obligation, because the Agency has failed to update the 2010 LCA, despite "committing" in 2010 "to further reassess . . . the lifecycle estimates."

In addition, EPA's continued reliance on its outdated 2010 LCA increases RFS compliance costs by making it harder for existing ethanol producers to qualify under the 20% threshold needed to generate non-grandfathered RINs.

EPA's continued reliance on the 2010 LCA is improper. The best available science shows that blending ethanol into gasoline reduces emissions of GHGs far more than EPA projected in 2010. In particular, new evidence shows that:

- Increased demand for corn causes much less land-use change and related emissions than EPA predicted in 2010. This evidence includes improved economic models and newly available land-use data from periods of increasing corn ethanol production, which show significant increases in yield but no significant increases in forest conversion.

- Improved agricultural practices and technologies are substantially reducing the carbon intensity of ethanol by increasing the soil carbon that is captured from the atmosphere by the corn plant and retained deep below ground. This evidence includes a growing body of science demonstrating that conservation tillage practices sequester more carbon in the soil than previously thought. In fact, the evidence suggests that many corn fields are net carbon “sinks,” capturing more carbon than land-use change and corn farming releases.
- More efficient agricultural practices and technologies have reduced nitrogen fertilizer losses of the greenhouse gas nitrous oxide (N₂O), and updated guidance has reduced the weight given to N₂O compared to other GHG pollutants.
- Ethanol plants have become much more efficient, as yields have continued to increase. Ethanol plants are also producing new co-products that reduce the carbon intensity of ethanol. In addition to distillers’ grains, used as animal feed, ethanol plants now produce corn oil, which replaces soy-based biodiesel.
- By contrast, petroleum-based fuels are becoming increasingly carbon-intensive. As a result, the gasoline carbon intensity baseline is higher than EPA suggested, increasing the comparative benefit of corn ethanol.

* * *

A review of the scientific literature confirms that EPA fundamentally erred in the conclusions it reached in 2010 about the lifecycle GHG emissions of corn ethanol. A recent study by the Department of Agriculture estimates that corn ethanol produces 43% and 48% less greenhouse gas emissions than EPA’s gasoline baseline, in 2014 and 2022, respectively, without fully accounting for soil carbon sequestration. But despite a growing body of updated scientific studies, EPA continues to rely on its 2010 LCA in the Proposed Rule. We urge EPA to correct its 2010 LCA or adopt USDA’s updated model and to conduct a new cost-benefit analysis in light of the best available science.

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INTRODUCTION

In 2010, EPA conducted a comprehensive lifecycle analysis of corn ethanol and gasoline in support of its RFS program (2010 LCA).¹ EPA's 2010 LCA included GHG emission inventories based on future industry projections and the scientific evidence available at the time.² As EPA noted, that data was subject to many uncertainties.³ EPA "recognize[d] that as the state of scientific knowledge continues to evolve in this area, the lifecycle GHG assessments for a variety of fuel pathways will continue to change."⁴ EPA therefore committed to "further reassess . . . the lifecycle estimates" on an ongoing basis,⁵ and to incorporate "any updated information we receive into a new assessment of the lifecycle GHG emissions performance of the biofuels being evaluated in [the 2010] rule."⁶

As EPA predicted in 2010, new science now shows that its past projections no longer represent "the best available information."⁷ As summarized in a recent lifecycle analysis report commissioned by the Department of Agriculture (USDA), "a large body of information has become available since 2010—including new data,

¹ See Renewable Fuel Standard Program, Regulatory Impact Analysis (2010) [hereinafter 2010 RFS RIA]. The Energy Independence and Security Act requires EPA to estimate lifecycle emissions, including emissions from land-use change. See 42 U.S.C. § 7545(o)(1)(H).

² Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program, 75 Fed. Reg. 14,670, 14,785 (Mar. 26, 2010) [hereinafter 2010 RFS Rule] (representing that the 2010 LCA included the "most up to date information currently available on the GHG emissions associated with each element of the full lifecycle assessment.").

³ *Id.* at 14,677, 14,765, 14,785. To illustrate the magnitude of EPA's scientific uncertainty, while EPA estimated a GHG reduction of 21% for corn ethanol in 2022 using advanced pathways, EPA's "95% confidence interval" ranged from a 7% to a 32% reduction. *Id.* at 14,786.

⁴ *Id.* at 14,765.

⁵ *Id.* at 14,765 ("Therefore, while EPA is using its current lifecycle assessments to inform the regulatory determinations for fuel pathways in this final rule, as required by the statute, the Agency is also committing to further reassess these determinations and lifecycle estimates."); accord *id.* at 14,785.

⁶ *Id.*

⁷ 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. at 14,785.

scientific studies, industry trends, technical reports, and updated emission coefficients—that indicates that . . . actual emissions . . . differ significantly from those projected” by EPA’s 2010 LCA.⁸ As the USDA study demonstrates, corn ethanol results in less GHG emissions than EPA predicted in its 2010 LCA. Thus, the best available science demonstrates that blending ethanol into gasoline lowers GHG emissions.

But despite this growing body of evidence, and despite EPA’s assurances that it would reassess its initial estimates as the science evolved, the Proposed Rule fails to update EPA’s 2010 cost-benefit analysis to include updated lifecycle emissions information. Instead of performing a comprehensive cost-benefit analysis based on the best available science, the Proposed Rule provides an “illustrative cost analysis for the proposed reductions” based solely on wholesale fuel costs.⁹ And the Proposed Rule attempts to justify its omission by pointing out that the relevant costs and benefits, including “GHG emissions,” “were analyzed in the 2010 [LCA].”¹⁰

EPA’s failure to update its lifecycle analysis affects more than the cost-benefit analysis of the present rule. EPA also continues to evaluate corn ethanol producer pathway petitions based on the same “feedstock modeling . . . done as part of the March 2010 [LCA].”¹¹ This makes it harder for new producers of renewable fuel to demonstrate their eligibility for RINs under the RFS.

EPA should update its lifecycle analysis to reflect the best available science.

Part I of these comments describes the commenters’ interest in the accuracy of EPA’s lifecycle analysis of ethanol and gasoline. Part II explains how EPA continues to rely on its outdated 2010 LCA. Part III summarizes the best available science on

⁸ ICF, A Life-Cycle Analysis of the Greenhouse Gas Emissions of Corn-Based Ethanol 4–5 (Jan. 12, 2017) [hereinafter 2017 USDA LCA].

⁹ Renewable Fuel Standard Program: Standards for 2018 and Biomass-Based Diesel Volume for 2019, 82 Fed. Reg. 34,206, 34,237 (July 21, 2017) [hereinafter Proposed Rule].

¹⁰ *Id.*

¹¹ EPA, AI-Corn Clean Fuel Pathway Determination under the RFS Program 7 (Aug. 15, 2017) [hereinafter EPA, AI-Corn Determination].

the GHG emission effects of corn ethanol and gasoline and explains why EPA's 2010 LCA is inaccurate.

I. THE COMMENTERS' INTEREST IN EPA'S 2010 LCA

Urban Air Initiative is a non-profit organization dedicated to improving air quality and protecting public health by reducing vehicle emissions. UAI is focused on increasing the use of clean burning ethanol in our gasoline supply to replace harmful aromatic compounds in gasoline. UAI is helping meet public policy goals to lower emissions and reduce carbon in the environment through scientific studies and real-world data to promote new fuels, engine design, and public awareness.

The Clean Fuels Development Coalition was established in 1988 and works with auto, agriculture, and biofuels interests in support of a broad range of energy and environmental programs.

25x'25 Alliance is a national coalition united behind the goal of securing 25 percent of the nation's energy needs from renewable sources by the year 2025. The 25x'25 goal has been endorsed by nearly 1,000 partners, 35 current and former governors, 15 state legislatures and the U.S. Congress through the Energy Independence and Security Act of 2007.

The Nebraska Ethanol Board is a state agency supporting ethanol development programs throughout the state, and assisting the industry with a range of technical, marketing, and regulatory issues.

The Nebraska Ethanol Industry Coalition is a statewide non-profit organization working together on issues of common interest to their members with a particular focus on market development and expansion.

Because the best available science shows that ethanol is cleaner and gasoline dirtier than EPA believed in 2010, EPA's continued use of its 2010 LCA frustrates the commenters' mutual interest in advancing a clean, low-carbon energy future while reducing harmful air pollution.

II. EPA CONTINUES TO RELY ON ITS OUTDATED 2010 LCA.

EPA correctly classifies the Proposed Rule as “an economically significant action” subject to regulatory review under the relevant Executive Orders.¹² Therefore, “in deciding . . . how to regulate[,]” EPA “should assess all costs and benefits of available regulatory alternatives” and “select those approaches that maximize net benefits.”¹³ In assessing the costs and benefits of the Proposed Rule, EPA must “use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible.”¹⁴ Moreover, EPA must “ensure the objectivity of any scientific and technological information and processes used to support the agency’s regulatory actions.”¹⁵ In short, the Proposed Rule must be “based on the best available science.”¹⁶

But in the Proposed Rule, EPA’s analysis “do[es] not take into consideration the benefits of the program.”¹⁷ Eschewing “comprehensive estimates” of the Proposed Rule’s costs and benefits, EPA offers only simplistic analyses of the cost of producing the additional volumes of ethanol required to be blended with the cost of producing an energy-equivalent amount of gasoline.¹⁸ EPA provides these estimates “solely for the purpose of illustrating how the cost to produce a gallon of ‘representative’ renewable fuels could compare to the costs of producing petroleum fuels”¹⁹—not to assess the actual costs and benefits of its annual standard. For

¹² Proposed Rule, *supra* note 9, 82 Fed. Reg. at 34,243.

¹³ Exec. Order No. 12,866 § 1(a), 3 C.F.R. 638 (1994), *reprinted as amended* in 5 U.S.C. § 601 app. at 45-49 (2006).

¹⁴ Exec. Order No. 13,563 § 1(c), 76 Fed. Reg. 3,821, 3,821 (Jan. 18, 2011).

¹⁵ *Id.* § 5, 76 Fed. Reg. at 3,822.

¹⁶ *Id.* § 1, 76 Fed. Reg. at 3,821.

¹⁷ Proposed Rule, *supra* note 9, 82 Fed. Reg. at 34,238.

¹⁸ *Id.* at 34,237.

¹⁹ *Id.*

analysis of the impacts of the RFS generally, the Proposed Rule directs the reader to EPA's cost-benefit analysis performed "in the 2010 final rulemaking."²⁰

But EPA's cost-benefit analysis was premised on its erroneous 2010 LCA. EPA must update its analysis of the lifecycle emissions of ethanol and gasoline to enable a comprehensive evaluation of the costs and benefits of the Proposed Rule and the RFS program as whole.

In addition, EPA continues to rely on its 2010 LCA to implement the RFS. Under the RFS program, non-grandfathered ethanol fuel must "achieve[] at least a 20 percent reduction in in lifecycle greenhouse gas emissions compared to baseline lifecycle greenhouse gas emissions."²¹

In its March 2010 rule, EPA finalized pathways that corn ethanol producers could use to generate corn ethanol renewable identification number credits under the RFS.²² These pathways are based on EPA's 2010 LCA, which concluded that by 2022, corn ethanol plants using natural gas and corn oil fractionation technology would achieve annual lifecycle greenhouse gas (GHG) emissions savings of only 21% compared to EPA's 2005 gasoline carbon intensity baseline of 93 grams of carbon dioxide equivalent per megajoule (g CO₂e/MJ).²³ By contrast, EPA predicted that grandfathered ethanol plants that do not use advanced technologies would

²⁰ *Id.*

²¹ 42 U.S.C. § 7545(o)(2)(A)(i).

²² 40 C.F.R. § 80.1426(f)(1).

²³ 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. at 14,786 ("The results for this corn ethanol scenario are that the midpoint of the range of results is a 21% reduction in GHG emissions compared to the gasoline 2005 baseline."); 2010 RFS RIA, *supra* note 1, at 469–70. EPA's central estimate of corn ethanol's carbon intensity in 2022 using these technologies was 79 kg CO₂e/mmBTU (million British thermal units), *id.* at 14,788, which is equivalent to 74.9 g CO₂e/MJ. EPA reported the carbon intensity baseline for 2005 gasoline at 98.2 kg CO₂e/mmBTU, which is equivalent to 93.1 g CO₂e/MJ. 2010 RFS RIA, *supra* note 1, at 467.

The conversion factor used to convert kg CO₂e/mmBTU to g CO₂e/MJ is 0.947817. All carbon intensity numbers are rounded to a single decimal.

achieve only a 16.8% reduction in GHG emissions relative to 2005 gasoline.²⁴ EPA continues to use its 2010 LCA to evaluate ethanol producer petitions.²⁵

Over half of the assessed GHG emissions of the typical grandfathered ethanol plant are estimated “upstream emissions” over which these ethanol plants have no control—the emissions from changes in international land-use patterns, as well as domestic farm inputs and emissions from fertilizer.²⁶ This high estimate of upstream emissions makes it more difficult for new corn ethanol producers to qualify to generate non-grandfathered RINs, and this in turn increases the cost of RINs. EPA should update its 2010 LCA to reduce these compliance costs.

III. EPA’S GREENHOUSE GAS EMISSIONS ESTIMATES ARE ERRONEOUS.

While EPA’s findings were doubtful in 2010, they are now demonstrably erroneous, given the wealth of newly available scientific and economic data that undermines EPA’s 2010 LCA. As a lifecycle analysis of corn ethanol GHG emissions commissioned by USDA recently found, “a large body of information has become available since 2010—including new data, scientific studies, industry trends, technical reports, and updated emission coefficients—that indicates that . . . actual emissions . . . differ significantly from those projected” by EPA’s 2010 LCA.²⁷ Using this updated information, USDA’s study—which largely tracks the methodology of EPA’s 2010 LCA—estimates that in 2014 corn ethanol was 43% less carbon-intensive than EPA’s 2005 gasoline baseline, and that corn ethanol’s advantage will grow to 48% by 2022.²⁸ This is a much greater benefit than EPA’s median estimate

²⁴ EPA, *AI-Corn Determination*, *supra* note 11, at 11, Table 2.

²⁵ *Id.*

²⁶ *Id.*; 2010 RFS RIA, *supra* note 1, at 470.

²⁷ 2017 USDA LCA, *supra* note 8, at 4–5.

²⁸ *Id.* at 166. The study estimated corn ethanol’s lifecycle emissions at 55,731 g CO₂e/MMBtu in 2014, equivalent to 52.8 g CO₂e/MJ, *id.* at 151, and at 50,553 g CO₂e/MMBtu in 2022, *id.* at 166, equivalent to 47.9 g CO₂e/MJ.

that corn ethanol will produce only 21% less greenhouse gas emissions than baseline gasoline in 2022.²⁹

Studies by the Department of Energy confirm that EPA's 2010 LCA understates corn ethanol's carbon reduction benefit. The Department of Energy's influential model of transportation sector GHG emissions (the GREET model) estimated a 35% lifecycle GHG emissions reduction for corn ethanol produced in 2015 compared to 2005 gasoline.³⁰ And Department of Energy scientists have suggested that further improvements in corn ethanol production "could render corn ethanol as having a 50% reduction in life-cycle GHG emissions as compared to gasoline."³¹

Corn ethanol's relative carbon intensity is even lower than these numbers suggest, because the carbon intensity of gasoline has increased since 2005, even as ethanol's carbon intensity has steadily fallen.³²

EPA should evaluate the costs and benefits of ethanol blending in light of the best available science concerning the lifecycle emissions of ethanol and gasoline. Section A will address upstream emissions from corn production, including indirect emissions from land-use change, emissions from domestic land-use change, and emissions from domestic and international farm input and fertilizer nitrous oxide

²⁹ 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. at 14,786.

³⁰ See Zhichao Wang et al., *Influence of Corn Oil Recovery on Life-Cycle Greenhouse Gas Emissions of Corn Ethanol and Corn Oil Biodiesel*, 8 Biotechnol. Biofuels 178, 178, 183, Fig. 3 (2015) (using GREET2015 to estimate an average corn-ethanol carbon intensity of 62 to 59 g CO₂e/MJ); Susan Boland & Stefan Unnasch, Life Cycle Associates, GHG Emissions Reductions Due to RFS, LCA.6075.11.2015, at 9 (2015) (using GREET2015 to estimate an average corn ethanol carbon intensity of 59.2 g CO₂/MJ).

³¹ Wang et al., *supra* note 30, at 186.

³² Amgad Elgowainy et al., *Energy Efficiency and Greenhouse Gas Emission Intensity of Petroleum Products at U.S. Refineries*, 48 Env'tl. Sci. & Tech. 7612, 7623 (2014) (estimating that the "total life-cycle GHG emissions for gasoline" are 94 g CO₂e/MJ); see also Hao Cai et al., *Well-to-Wheels Greenhouse Gas Emissions of Canadian Oil Sands Products: Implications for U.S. Petroleum Fuels*, 49 Env'tl. Sci. & Tech. 8219 (2015) (predicting greater emissions due to the growing share of Canadian oil sands gasoline in the U.S. market).

(N₂O) emissions.³³ Section B will address biorefinery emissions. Section C will discuss gasoline’s lifecycle emissions.

A. Corn Production

EPA’s estimate of “upstream emissions” from corn production (and its alleged indirect effects), accounts for the majority of the GHG emissions that the 2010 LCA attributes to corn ethanol.³⁴ Within upstream emissions, international land-use change emissions (ILUC) account for the greatest fraction (40%) of EPA’s estimate of corn ethanol’s carbon intensity, followed by domestic farm input and fertilizer emissions (13%) and international farm input and fertilizer emissions (7%).³⁵ See Figure 1.

New evidence has exposed significant flaws in EPA’s estimate of corn ethanol’s upstream GHG emissions. Updated models and empirical evidence of actual land-use patterns demonstrate that

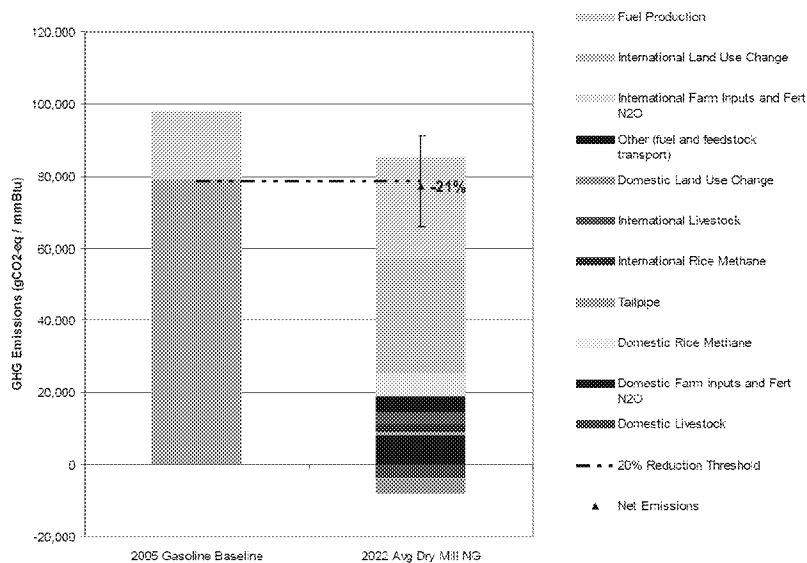


Figure 1: 2010 RFS RIA (Figure 2.6-2)

carbon emissions from land-use change are much lower than the estimate in EPA’s 2010 LCA. EPA’s assessment of domestic and international farm input and fertilizer N₂O emissions, are also outdated and in need of correction. As explained below, correcting these upstream emission estimates based on the updated science noted in

³³ These comments do not address all GHG emission categories included in EPA’s 2010 LCA. For a comprehensive, updated analysis, see 2017 USDA LCA, *supra* note 8.

³⁴ 2010 RFS RIA, *supra* note 1, at 470, Figure 2.6-2.

³⁵ See *id.*

the USDA’s study would reduce EPA’s estimate of corn ethanol’s upstream emissions in these categories from 45.5 g to 11.1 g CO₂e/MJ in 2022—a 76% reduction. *See* Table 1.

Table 1: EPA Upstream Emissions Compared to Updated USDA Upstream Emissions

Upstream Emissions	EPA 2022 (g CO ₂ e/MJ)	USDA 2014 (g CO ₂ e/MJ)	Δ (g CO ₂ e/MJ)	USDA 2022 BAU (g CO ₂ e/MJ)	Δ (g CO ₂ e/MJ)
ILUC	30.3	1.3	-29.1	1.3	-29.1
Dom. Farm	9.8	8.6	-1.2	7.8	-2
Intl. Farm	5.4	2.1	-3.3	2.1	-3.3
Total	45.5	12.0	-33.6	11.1	-34.4

In addition, EPA’s analysis of domestic land-use change does not account for the adoption of crop management techniques that improve soil carbon sequestration in corn croplands, particularly when combined with corn ethanol’s high yields. Accounting for these practices would further reduce corn ethanol’s emissions.

1. International Land-Use Change Emissions

EPA’s 2010 LCA estimated ILUC emissions for corn ethanol in 2022 at 30.3 g CO₂e/MJ, accounting for 40% of corn ethanol’s estimated carbon intensity.³⁶ As EPA explained, “the majority of international land use change emissions originate in Brazil This is largely as a consequence of projected pasture expansion . . . especially in the Amazon region where land clearing causes substantial GHG emissions.”³⁷ Indeed, in EPA’s 2010 LCA, more than two-thirds of corn ethanol’s predicted ILUC emissions were attributable to predicted land-use changes in Brazil.³⁸

³⁶ 2010 RFS RIA, *supra* note 1, at 407, Table 2.4-47 (estimating ILUC at 31.8 kg CO₂e/mmBTU); 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. at 14,788.

³⁷ 2010 RFS RIA, *supra* note 1, at 470.

³⁸ *Id.* at 470 (showing that 22 out of 31.8 kg CO₂e/mmBTU are attributable to Brazil).

At the time, EPA acknowledged that these results were subject to great uncertainty.³⁹ In fact, the estimates reported in these early analyses were never accurate, and they have since been refuted by the best available science.

Parameters related to intensification, yield improvement, land displacement, and the type of land converted are key drivers of ILUC emissions, but EPA's models failed to accurately reflect these complexities. For example, EPA's ILUC model does not "distinguish what types of land will be affected by a given shock to the agricultural system."⁴⁰ More recent models of indirect land-use change have included "a more detailed assessment of yield improvement, land cover type, soil carbon stocks, and other parameters," resulting in significantly lower estimates of land-use change emissions.⁴¹

EPA's ILUC assessment in 2010 relied on outdated economic models developed by the Food and Agricultural Policy and Research Institute, maintained by the Center for Agricultural and Rural Development (FAPRI-CARD).⁴² EPA also "opted to use the GTAP [Global Trade Analysis Project] model to inform the range of potential GHG emissions associated with land use change resulting from an increase in renewable fuels."⁴³

Since 2010, more accurate land-use change models have shown that EPA's initial estimates were too high.⁴⁴ As one recent study explained, "prior to the last couple of years, there was insufficient data on global land-use change during the

³⁹ 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. at 14,765 ("The indirect, international emissions are the component of our analysis with the highest level of uncertainty.").

⁴⁰ 2017 USDA LCA, *supra* note 8, at 121.

⁴¹ Boland & Unnasch, *supra* note 30, at 20.

⁴² The agency used FAPRI-CARD to model international land-use emissions, and FASOM to model domestic emissions. 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. at 14,768.

⁴³ *Id.* at 14,781.

⁴⁴ See, e.g., Jennifer B. Dunn et al., *Land-use change and greenhouse gas emissions from corn and cellulosic ethanol*, 6 Biotech. for Biofuels 51 (2013).

biofuels boom era. However, now we have that data, and it can be used to better calibrate prior estimates of land-use change.”⁴⁵ Accordingly, Purdue’s agricultural economists recalibrated the GTAP model in 2013.⁴⁶ As a result of these changes, the GTAP model now projects “less expansion in global cropland due to ethanol expansion”; a “lower U.S. share in global cropland expansion”; and a “lower forest share in global cropland expansions.”⁴⁷ More recently GTAP analysts have also refined the land carbon stock estimates used by the model.⁴⁸ Department of Energy scientists now say that, in light of GTAP model refinements, a more realistic estimate of corn ethanol’s ILUC emissions is 5.1 g CO₂e/MJ.⁴⁹ EPA’s ILUC estimate should be corrected using the updated GTAP model to accord with the Department of Energy’s estimate.

Even more importantly, EPA failed to account for the intensification of agriculture in its ILUC estimate. Empirical data cited in USDA’s new study has discredited EPA’s predicted ILUC emissions in Brazil and other countries: corn ethanol has not significantly increased deforestation in the Amazon region or elsewhere.⁵⁰ Contrary to EPA’s FAPRI-CARD model predictions, empirical evidence shows that during the period of corn ethanol expansion, Brazilian deforestation actually fell significantly, and farmers responded to changes in price primarily by using available land resources more efficiently—mostly by harvesting

⁴⁵ See, e.g., Farzad Taheripour & Wallace E. Tyner, *Biofuels and Land-use Change: Applying Recent Evidence to Model Estimates*, 3 Appl. Sci. 14, 15 (2013).

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ See, e.g., Holly Gibbs et al., New Estimates of Soil and Biomass Carbon Stocks for Global Economic Models, Global Trade Analysis Project (GTAP) Tech. Paper No. 33, at 21 (2014), *available at* <http://bit.ly/1TuJq98>.

⁴⁹ See Jennifer B. Dunn et al., DOE Argonne Nat’l Lab., Carbon Calculator for Land Use Change from Biofuels Production, ANL/ESD/12-5, at 25 (2016), *available at* <http://1.usa.gov/1M84WIT>.

⁵⁰ See 2017 USDA LCA, *supra* note 8, at 60–66.

land more often (“double cropping”)—not expanding acreage.⁵¹ That is particularly true for Brazil.⁵²

EPA’s 2010 LCA, however, does not take into account the “non-yield” intensification of cropland through techniques like double cropping.⁵³ Thus, EPA overstated the carbon intensity of corn ethanol.⁵⁴ As the USDA’s recent lifecycle analysis shows, when the updated 2013 GTAP model is further adjusted to account for this new empirical evidence, ILUC emissions for corn ethanol fall to an almost insignificant 1.3 g CO₂e/MJ.⁵⁵

Despite this new evidence, EPA’s 2016 response to a Request for Correction of Information (RFC) submitted by Urban Air Initiative stated that no correction to its ILUC estimate for corn ethanol was required. The Agency claimed that because “[s]tudies published between 2011 and 2015 vary” widely and EPA’s estimate “is still within the range.”⁵⁶ Six of the twelve studies cited by EPA, however, are European biofuel studies of no apparent relevance to ILUC emissions from corn ethanol produced in the United States.⁵⁷ Another study cited by EPA is based on a 2009 working paper that uses the same erroneous FAPRI-CARD model as EPA’s

⁵¹ *Id.* (citing Bruce A. Babcock & Zabid Iqbal, *Using Recent Land-use Changes to Validate Land-use Models*, 14-SR 109 (2014)).

⁵² *See id.* at 63 (showing that 76% of the increase in harvested land in Brazil is due to changes in double cropping).

⁵³ *See* Babcock & Iqbal, *supra* note 51, at 20–22 (criticizing the FAPRI-CARD model).

⁵⁴ *See id.* (“The pattern of recent land use changes suggests that existing estimates of greenhouse gas emissions caused by land conversions due to biofuel production are too high because they are based on models that do not allow for increases in non-yield intensification of land use. Intensification of land use does not involve clearing forests or plowing up native grasslands that lead to large losses of carbon stocks.”).

⁵⁵ 2017 USDA LCA, *supra* note 8, at 125, Table 3.43 (estimating ILUC emissions at 1,326 g CO₂e/mmBTU).

⁵⁶ EPA, Response to RFC 16003, at 1 (Dec. 8, 2016), *available at* https://www.epa.gov/sites/production/files/2016-12/documents/epa_response_to_rfc_16003.pdf.

⁵⁷ *See id.* at 1, nn. 4, 6, 8, 9, 10, 11 (citing studies).

2010 LCA analysis.⁵⁸ In the other studies EPA cited in its response to the RFC, the mean ILUC emissions are lower than EPA's 2010 estimate.⁵⁹

USDA's study shows that a plausible range of ILUC emissions from corn ethanol based on recent scientific estimates extends from 18.9 g CO₂e/MJ to 1.3 g CO₂e/MJ, significantly below EPA's 2010 LCA estimate of 30.3 g CO₂e/MJ.⁶⁰

2. Domestic Land-Use Change Emissions

In its 2010 LCA, EPA estimated that corn ethanol's domestic land use change emissions would reduce corn ethanol's carbon intensity by 3.8 g CO₂e/MJ.⁶¹ EPA developed its estimate using the Forest and Agricultural Sector Optimization Model designed by Texas A&M.⁶²

This estimate may be too low, because EPA's model assumes corn ethanol is grown with conventional tilling practices.⁶³

Since EPA's 2010 LCA, new evidence has demonstrated that reduced tillage practices—particularly no-till agriculture—significantly increase soil organic carbon in corn soils. A multiyear study of South Dakota surface soil samples (0-15 cm in depth), led by soil scientist David Clay, found clear evidence that no-tillage practices (and higher corn yields) increase soil carbon sequestration.⁶⁴ The study used laboratory surface soil samples submitted by agricultural producers. From the

⁵⁸ *Id.* at 1 n.3 (citing Jerome Dumortier et al., Sensitivity of Carbon Emission Estimates from Indirect Land-Use Change, Working Paper, 09-WP 493 (July 2009), <http://www.card.iastate.edu/products/publications/pdf/09wp493.pdf>.)

⁵⁹ *See id.* at 1, n. 5, 7, 12, 13, 14 (citing studies).

⁶⁰ 2017 USDA LCA, *supra* note 8, at 127, Figure 3-4.

⁶¹ 2010 RFS RIA, *supra* note 1, at 362, Figure 2.4-19.

⁶² *Id.* at 355.

⁶³ 2017 USDA LCA, *supra* note 8, at 155.

⁶⁴ *See* David E. Clay et al., *Corn Yields and No-Tillage Affects Carbon Sequestration and Carbon Footprints*, 104 *Agron. J.* 763 (2012) [hereinafter Clay et al., *Carbon Sequestration*]; *see also* David Clay et al., *Tillage and Corn Residue Harvesting Impact Surface and Subsurface Carbon Sequestration*, 44 *J. Environ. Qual.* 803 (2015) [hereinafter Clay et al., *Tillage and Corn Residue*].

laboratory results, Clay concluded that the soils studied were now net “carbon sinks,” thanks, in part, to the adoption of reduced tillage and no-tillage practices, as well as increased corn crop yields over the years.⁶⁵ Over a period of three years, Clay found that the average carbon sequestration rate was 341 kg of carbon per hectare per year.⁶⁶ Over a longer period of 25 years, Clay concluded that the average carbon sequestration rate was 386 kg of carbon per hectare per year.⁶⁷ This is equivalent to an annual carbon intensity credit of 18.2 CO₂e/MJ for that time period.⁶⁸

Studies of deeper soil samples have shown even greater increases in soil carbon from reduced tillage. For example, a 2012 USDA study collected soil samples from as deep as 150 cm below the surface of experimental no-till fields in Nebraska, measuring changes in soil organic content over nine years.⁶⁹ The study found that improved agricultural management practices can double or even quadruple total soil organic carbon when deep soil is taken into account.⁷⁰ The study found average annual increases of more than 2 metric tons of soil organic carbon per hectare, with over 50% of the carbon sequestered deeper than 30 cm in the soil profile.⁷¹ The sequestration rates found by the study “greatly exceed the soil carbon credits that have been used in modeling studies to date for maize and switchgrass grown for bioenergy.”⁷² Other recent USDA studies have reached similar results.⁷³

⁶⁵ Clay et al., *Carbon Sequestration*, *supra* note 64, at 769.

⁶⁶ *Id.* at 768.

⁶⁷ *Id.*

⁶⁸ See Appendix, *infra* p. 23.

⁶⁹ Ronald F. Follett et al., *Soil Carbon Sequestration by Switchgrass and No Till Maize Grown for Bioenergy*, 5 *Bioenerg. Research* 866, 867 (2012), available at <http://bit.ly/1QIHAPv>.

⁷⁰ *Id.* at 867.

⁷¹ *Id.* at 873.

⁷² *Id.*

⁷³ See Ardel D. Halvorson & Catherine E. Stewart, *Stover Removal Affects No-Till Irrigated Corn Yields, Soil Carbon, and Nitrogen*, 107 *Agron. J.* 1504 (2015).

In light of these studies, EPA should update its lifecycle analysis to include a pathway for corn cultivated with reduced tillage practices.⁷⁴

3. Domestic Farm Inputs and Fertilizer N₂O

According to EPA's 2010 LCA, domestic farm inputs accounted for 9.8 g CO₂e/MJ of corn ethanol's lifecycle emissions in 2022, or 13% of total lifecycle emissions.⁷⁵ A significant fraction of these emissions result from N₂O emissions from the application of nitrogen fertilizer to corn fields, as the applied nitrogen is released as N₂O through a biochemical process of microbial "nitrification" and "denitrification" that is stimulated when nitrogen fertilizer application exceeds plant needs.⁷⁶

EPA's estimate for domestic farm inputs needs correction for at least two reasons. First, it uses outdated U.N. Intergovernmental Panel on Climate Change (IPCC) guidelines to calculate the effect of N₂O emissions on global warming. Second, it ignores available technologies that reduce N₂O emissions by reducing fertilizer losses.

a. The 2010 LCA Uses Outdated IPCC Guidelines.

Because a molecule of N₂O contributes more to climate change than a molecule of CO₂, a conversion factor, known as a global warming potential (GWP), is used to convert N₂O emissions to a CO₂-equivalent.⁷⁷ For its 2010 LCA, EPA used the GWP from the IPCC's Second Assessment Report, which was 310.⁷⁸ This value is outdated. The IPCC's Fourth and Fifth Assessments both recommend a lower GWP of 298 for N₂O, and in 2013, the UN updated its GHG reporting guidelines to

⁷⁴ See Appendix, *infra* p. 55 (estimating carbon intensity credits from several studies).

⁷⁵ 2010 RFS RIA, *supra* note 1, at 334, Table 2.4-13.

⁷⁶ *Id.* at 330, Table 2.4-8.

⁷⁷ *Id.* at 313.

⁷⁸ *Id.* at 313, Table 2.3 3.

require EPA to use a GWP of 298 for N₂O emissions.⁷⁹ Applying this updated GWP would reduce the contribution of N₂O emissions to corn ethanol's lifecycle emissions.

b. The 2010 LCA Ignores Technologies that Reduce Farm N₂O Emissions.

Second, because the EPA's 2010 LCA does not include updated USDA data on farm practices, EPA fails to account for "an increase in crop and nutrient management strategies" that greatly decrease N₂O losses.⁸⁰ The most important technologies that EPA's 2010 LCA ignores are the increased use of nitrification inhibitors to delay the nitrification process, and the use of precision agriculture to optimize fertilizer application and minimize losses to the environment.⁸¹

Studies show that the use of nitrification inhibitors alone can reduce N₂O emissions from fertilizer by 19% to 60%.⁸² But because EPA's 2010 LCA does not include the latest USDA data, it does not include "changes in emissions caused by these increasingly common practices."⁸³

In its recent response to Urban Air Initiative's Request for Correction, EPA stated that no correction to its N₂O emissions estimate for corn ethanol was required because its projected fertilizer application rate for 2022 was not inconsistent with 2010 data.⁸⁴ But application rate is a separate issue from the GHG reductions

⁷⁹ EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2015, 1-9, 1-10 (Apr. 2017).

⁸⁰ 2017 USDA LCA, *supra* note 8, at 15-16.

⁸¹ *Id.* at 15.

⁸² *Id.* at 15-16 (collecting studies).

⁸³ *Id.* at 16.

⁸⁴ EPA, Response to RFC#16003, at 2 (Dec. 8, 2016) (emphasis added).

achieved by nitrification inhibitors, and EPA's data still does not account for the effect of nitrification inhibitors on N₂O losses.⁸⁵

According to the USDA's recent study, an updated lifecycle analysis would yield a domestic farm inputs and fertilizer N₂O emissions value of 8.6 g CO₂e/MJ in 2014.⁸⁶ By 2022, the USDA study estimates these emissions will be even lower, at 7.8 g CO₂e/MJ, a significant reduction relative to EPA's estimate of 9.8 g CO₂e/MJ in 2022.⁸⁷

4. International Farm Inputs and Fertilizer N₂O

In its 2010 RIA, EPA estimated that international farm inputs and fertilizer emissions resulting from its projected increase in corn ethanol would be 5.4 g CO₂e/MJ,⁸⁸ or 7% of total corn ethanol lifecycle emissions, mostly as a result of increased N₂O losses resulting from an increase in crop acreage abroad.⁸⁹

This estimate is too high, for at least two reasons. First, as already mentioned, EPA applied an outdated GWP for N₂O emissions that was too high. Second, the international land-use changes on which EPA's estimate was predicated are based on outdated models, and have not in fact occurred.⁹⁰ The USDA's recent lifecycle analysis estimates a more realistic 2.1 g CO₂e/MJ for international farm inputs and NO₂ emissions from fertilizer, significantly below EPA's 2010 LCA estimate.

⁸⁵ 2017 USDA LCA, *supra* note 8, at 15 (stating that while USDA data "already reflect the effects of precision agriculture through the reduced fertilizer use per bushel of corn harvest . . . use of nitrification inhibitors is not reflected in estimation of N₂O emissions.").

⁸⁶ *Id.* at 95, Table 3-10.

⁸⁷ *Id.* at 157, Table 4-3.

⁸⁸ 2017 USDA LCA, *supra* note 8, at 95, Table 3-47 (reporting EPA's value at 5,720 g CO₂/mmBTU).

⁸⁹ See 2010 RFS RIA, *supra* note 1, at 342, Table 2.4-16 (estimating corn ethanol international N₂O emissions at 3.38 kg CO₂e/mmBTU).

⁹⁰ 2017 USDA LCA, *supra* note 8, at 95.

B. Ethanol Fuel Production

In its 2010 LCA, EPA estimated that ethanol fuel production at biorefineries would account for 28.4 g CO₂/MJ, or 38% of EPA's estimated carbon intensity for corn ethanol.⁹¹ This value needs to be corrected because it underestimates ethanol plant yields and it fails to fully account for corn ethanol co-products.

1. Ethanol Plant Yields

EPA's estimate of ethanol fuel production emissions is in part a result of its underestimation of the ethanol yield—the amount of ethanol that biorefineries produce from each bushel of corn. EPA's 2010 LCA predicted a yield of “2.71 gallons per bushel for dry mill plants and 2.5 gallons per bushel for wet mill plants.”⁹² This implies a weighted average yield of 2.63 gallons per bushel for ethanol plants.⁹³

Based on recent data from the Energy Information Administration and USDA, the current average yield for both wet and dry mill ethanol plants is 2.84 gallons per bushel, significantly above the yields built into EPA's models.⁹⁴ Correcting the 2010 LCA's yield assumption would significantly reduce EPA's estimate of ethanol fuel production emissions.

2. Corn Oil

A proper lifecycle analysis of corn ethanol would fully account for biorefinery co-products that displace GHG emissions elsewhere. EPA's based its 2010 LCA emission estimated in part on the assumption that “70% of dry mill ethanol plants”

⁹¹ *Id.* at 145, Table 3-63 (reporting EPA's value).

⁹² 2010 RFS RIA, *supra* note 1, at 425.

⁹³ EPA estimated ethanol plants in 2022 would consist of 63% dry mill and 37% wet mill. *Id.* at 471, Figure 2.6-3.

⁹⁴ See Renewable Fuels Ass'n, Industry Statistics: Monthly Implied Average Ethanol Yield (Gallons per Bushel) (last updated August 1, 2017), *available at* <http://www.ethanolrfa.org/resources/industry/statistics/#1461259890924-697180ef-b2a8> (reporting an average yield for 2016 of 2.84).

would extract corn oil for use as biodiesel in 2022.⁹⁵ More recently, Department of Energy scientists estimated that as of 2014, over 80% of the dry mill ethanol plants now generate corn oil for biodiesel plants.⁹⁶ A bushel of corn currently produces about 0.55 pounds of corn oil.⁹⁷ And corn oil displaces soy oil used as a feedstock for biodiesel, reducing GHG emissions.⁹⁸ GREET has been updated to include a one-to-one displacement credit to account for the displacement of soy oil.⁹⁹ But EPA has not updated its 2010 LCA to reflect the increase in corn oil co-products.

C. Gasoline Lifecycle Emissions

Since EPA's 2010 LCA, petroleum-based fuels have become more carbon-intensive. As a result, the baseline gasoline carbon intensity value that EPA relied upon in the 2010 RFS Rule is inaccurate. Even if EPA is obligated to use an arbitrary 2005 petroleum baseline to approve renewable fuel pathways,¹⁰⁰ EPA *is not* obligated to use that baseline to calculate the GHG benefits of the program. As the National Academy of Sciences noted in 2011, a proper "comparison scenario" for ethanol should include marginal GHG emissions "resulting from any change in the use of oil sands and other nonconventional sources of petroleum."¹⁰¹ Because gasoline's carbon

⁹⁵ See 2010 RFS RIA, *supra* note 1, at 428.

⁹⁶ See Zhichao Wang et al., Argonne Nat'l Lab., Updates to Corn Ethanol Pathway and Development of an Integrated Corn and Corn Stover Ethanol Pathway on the GREET Model, ARGONNE/ESD-14/11 (2014).

⁹⁷ See Scott Irwin, *The Profitability of Ethanol Production in 2015*, 6 Farmdoc Daily, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, (Jan. 6, 2016), available at <http://bit.ly/1phwLdh>.

⁹⁸ Wang, *supra* note 96, at 4.

⁹⁹ *Id.* at 5.

¹⁰⁰ See 42 U.S.C. §§ 7545(o)(1)(C), 7545(o)(2)(A)(i).

¹⁰¹ NRC, Renewable Fuel Standard, Potential Economic and Environmental Effects of U.S. Biofuel Policy 195 (2011).

intensity has increased, the corresponding GHG benefits of the RFS have also increased.

Gasoline GHG emissions are trending upwards because of increased “use of oil sands and other nonconventional sources of petroleum.”¹⁰² Unlike renewable fuel producers, which are required to achieve lifecycle reduction benefits to qualify for the RFS, EPA does not hold gasoline producers accountable for their increased lifecycle GHG emissions.¹⁰³

Methane flares from shale oil extraction have increased GHG emissions from oil production.¹⁰⁴ Tar sand recovery often requires carbon-intensive steam injection, additional carbon-intensive processing to separate bitumen from tar sands, and chemicals to reduce the viscosity of the product for transportation, increasing extraction emissions.¹⁰⁵ Emissions associated with refining a barrel of tar sand oil are also higher.¹⁰⁶ And even conventional oil is becoming more carbon-intensive. Oil

¹⁰² Jeremy Martin, Union of Concerned Scientists, *Fueling a Clean Transportation Future*, at 1 (2016) (“As oil companies increasingly go after unconventional, hard-to-reach sources such as tar sands and use more intense extraction techniques such as hydraulic fracturing (fracking), dirtier sources of oil have become an increasingly large part of the mix, and wasteful practices are needlessly increasing emissions.”). Oil is the largest fossil fuel contributor to global warming in the United States, contributing more than coal and natural gas. *Id.* at 8. For other studies on the high marginal emissions of unconventional oil sources, see Deborah Gordon et al., *Know Your Oil: Creating a Global Oil-Climate Index*, Carnegie Endowment for Global Peace (2015); Susan Boland & Stefan Unnasch, *Life Cycle Associates, Carbon Intensity of Marginal Petroleum and Corn Ethanol Fuels*, LCA.6075.83.2014 (2014).

¹⁰³ See Martin, *supra* note 102, at 5 (“[E]lectricity and biofuels are getting cleaner because producers are subject to careful scrutiny of the global warming emissions associated with the fuels’ production, and public policy is holding producers accountable to reduce these emissions. However, the same level of scrutiny is not being applied to the different sources and methods of producing gasoline. In addition, oil companies are not obligated to reduce emissions from their supply chains. For the United States to avoid the worst consequences of climate change, all fuel producers have to minimize their global warming pollution.”). While regulation might help mitigate GHG emissions from tight oil, “[t]he most obvious way for the United States to reduce the problems caused by oil use is to steadily reduce oil consumption through improved efficiency and by shifting to cleaner fuels.” *Id.* at 7, 12.

¹⁰⁴ *Id.* at 16–17.

¹⁰⁵ *Id.* at 19–20.

¹⁰⁶ *Id.* at 20.

producers are injecting additional steam, chemicals, and gases (including methane) to enhance oil recovery, increasing the energy and carbon intensity of conventional oil extraction.¹⁰⁷

EPA's 2010 LCA understates the carbon intensity of gasoline. When EPA's skewed carbon intensity baseline for gasoline is corrected, corn ethanol is an even more attractive substitute. Because of tight oil, the Department of Energy estimated that carbon intensity of gasoline in 2014 was 94 g CO₂e/MJ, higher than EPA's 2005 baseline value.¹⁰⁸

CONCLUSION

In 2010, EPA predicted that blending corn ethanol into gasoline would reduce GHG emissions. The Agency was right about that, but ethanol is even better at cutting carbon emissions than EPA gave it credit for. In the 2010 RFS Rule, EPA estimated corn ethanol would have a carbon intensity of 74.9 g CO₂e/MJ in 2022.¹⁰⁹ The USDA's recent estimate is 36% lower—47.9 g CO₂e/MJ.¹¹⁰ And when adjusted for the soil carbon sequestration of the corn plant, the carbon intensity of corn ethanol may fall by 18.2 g or more, depending on soil conditions, tillage practices, and corn crop yield, resulting in a carbon intensity of 29.7 g CO₂e/MJ or less.¹¹¹ At that rate, ethanol would generate at least 68% less lifecycle GHG pollution than 2005 baseline gasoline on an energy-equivalent basis. The GHG benefits of ethanol will only grow as ethanol production becomes increasingly efficient, and gasoline production continues to get dirtier.

¹⁰⁷ *Id.* at 15.

¹⁰⁸ See Elgowainy et al., *supra* note 32, at 7623 (estimating that the “total life-cycle GHG emissions for gasoline” are 94 g CO₂e/MJ).

¹⁰⁹ 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. 14,788.

¹¹⁰ 2017 USDA LCA, *supra* note 8, at 166.

¹¹¹ See Clay et al., *Carbon Sequestration*, *supra* note 64, at 769; Appendix, *infra* p. 23.

This analysis does not account for the fuel efficiency gains that would be possible if ethanol were blended above the 10% level of most U.S. gasoline. By enabling the auto industry to produce engines with higher compression ratios and more fuel-efficient vehicles, high-octane mid-level ethanol fuel blends could achieve significant downstream, as well as upstream, GHG reductions.¹¹²

The data and studies that were available to EPA in 2010 were inaccurate, and they are now obsolete. The 2010 LCA is not a sound basis for estimating the costs and benefits of the Proposed Rule or for evaluating the carbon intensity of new ethanol producers. EPA must either adopt USDA's updated estimate and allow for situation-specific soil carbon adjustments, or correct the inaccuracies in its outdated lifecycle analysis to reflect the best available science.

¹¹² See *Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards*, 79 Fed. Reg. 23,414, 23,528–29 (Apr. 28, 2014) (“E30 or higher ethanol blends . . . could help manufacturers who wish to raise compression ratios to improve vehicle efficiency as a step toward complying with the 2017 and later light-duty greenhouse gas and CAFE standards. This in turn could help provide a market incentive to increase ethanol use beyond E10.”).

APPENDIX

Study & Year	Clay et al (2012 Long-Term) ⁱ	Clay et al (2015) ⁱⁱ	Follett et al (2012) ⁱⁱⁱ	Halvorson & Stewart (2015) ^{iv}
Soil Depth	0-15 cm	0-30 cm	0-150 cm	0-60 cm
Tillage	Various	No-Till & Chisel	No-Till	No-Till
Study Length (years)	25	5	9	7
SOC gain (Mg. /Ha./Yr.) ^v	0.368	0.53	2.6	0.856
Avg. Corn Yield in Study (Bushels/Ha./Yr.) ^{vi}	334	449	240	347
Ethanol Yield (Gallons/Bushel) ^{vii}	921	1240	663	959
Ethanol Energy Yield (MJ/Gallon) ^{viii}	74,144	99,826	53,378	77,214
Grams Soil Carbon /MJ ^{ix}	4.96	5.31	48.71	11.09
C to CO ₂ conversion (CO = C * 3.664) ^x	3.664	3.664	3.664	3.664
Credit in Grams CO₂ eq./MJ^{xi}	18.2	19.5	178.5	40.6

ⁱ Clay, *Carbon Sequestration*, *supra* note 64. The 2012 Clay paper includes two studies. The first, a seven-year study, estimated that surface soil carbon sequestration reduces the carbon intensity of corn ethanol by as much 19.6g CO₂e/MJ in the North-Central and Southeast regions of North Dakota. *Id.* at 769. The data in this study is based on the second study, a twenty-five year study.

ⁱⁱ Clay et al., *Tillage and Corn Residue*, *supra* note 64.

ⁱⁱⁱ Follett et al., *supra* note 69.

^{iv} Halvorson & Stewart, *supra* note 73.

^v Soil Organic Carbon (SOC) gain is expressed in annual Megagrams (Mg.) (1 Mg. = 1,000 Kg.) of carbon sequestered per year, per hectare (ha.). The .368 Mg. SOC for Clay's 2012 study is based on the reported average over the 25 years of the study. Clay et al., *Carbon Sequestration*, *supra* note 64, at 768 ("[D]uring the past 25 yr, surface SOC amounts have increased at an average rate of 368 kg C (ha × yr).⁻¹"). The 2.65 Mg. SOC gain for Clay's 2015 study is based on the average SOC gain, with no stover removal. Clay et al., *Tillage and Corn Residue*, *supra* note 64, at 808 ("[I]n the combined 0- to 15- and 15- to 30-cm soil zones . . . 2.65 Mg SOC ha⁻¹ were sequestered . . . in the 0% residue removal treatment[.]"). The 2.6 Mg. SOC gain for Follett's study is based on the observed gain applying 120 kg/ha of nitrogen fertilizer, with no stover removal. Follett et al., *supra* note 69, at 873 ("At the 120 kg ha⁻¹ N fertility rate with no stover harvest, the annual increase in soil C was 2.6 Mg ha⁻¹ year.⁻¹[.]"). The .856 Mg. SOC gain figure for Halvorson & Stewart's study is based on the annual average, with no stover removal. Halvorson & Stewart, *supra* note 73, at 1510 ("The estimated annual rate of SOC gain from the FR [full stover retained] treatments over the 7yr of this study would have been . . . 856 kg C h⁻¹ from the . . . 0 to 60-cm soil depths.").

^{vi} One bushel equals 25.40 kg of corn grain. *See* Iowa State, Ag Decision Maker Metric Conversions, C6-80 (May 2013), *available at* <http://bit.ly/1VxnEks>. The average yield for Clay's 2012 study is based on USDA historical data for the counties tested. Nat'l Agric. Research Serv., Quick Stats, *available at* http://www.nass.usda.gov/Quick_Stats/; *see also* Clay et al., *Carbon Sequestration*, *supra* note 64, at 768 & fig. 6. The average yield for Clay's 2015 study is based on the reported yield of 11,408 kg. per ha., with no stover removal. Clay et al., *Tillage and Corn Residue*, *supra* note 64, at 806, Table 1. The average yield for Follett's study is based on the reported figure for corn grain using 120 kg of nitrogen fertilizer per ha., with no stover removal. Follett 2012, *supra* note 69, at 873. The average yield for Halvorson & Stewart's study is 8,824 kg. per ha., with no stover removal. Halvorson & Stewart, *supra* note 73, at 1507.

^{vii} The ethanol yield is conservatively based on the USDA's average yield of 2.76 gallons per bushel in 2010, multiplied by the number of bushels produced every year. USDA, 2015 Energy Balance for the Corn Ethanol Industry, Table 1 (Feb. 2016).

^{viii} The ethanol energy yield is based on multiplying the ethanol yield by the heating value of undenatured ethanol used by CARB: 80.53 MJ per gallon of ethanol. CARB, Calculation of Denatured Ethanol CI and CA RFG, <http://bit.ly/1oCEj9k>.

^{ix} Grams of soil carbon are derived by converting Mg. SOC gain into grams and dividing it by the ethanol energy yield.

^x The carbon to CO₂ conversion factor is based on a molecular weight conversion from carbon to CO₂: 1 gram of carbon = 3.664g CO₂. *See* Carbon Dioxide Information Analysis Center, Conversion Tables, Oak Ridge Nat'l Lab., Table 3, <http://cdiac.ornl.gov/pns/convert.html>.

^{xi} The carbon intensity credit is arrived at by multiplying the carbon conversion factor by grams of soil carbon per MJ.